FUNAI

SERVICE MANUAL

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- Specifications
- Preparation for Servicing
- Adjustment Procedures
- Schematic Diagrams
- CBA's
- Exploded views
- Parts List

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VIDEO CASSETTE RECORDER

29A-650/29A-654

VHS
PAL

MAIN SECTION

VIDEO CASSETTE RECORDER

29A-650/29A-654

Sec. 1: Main Section

- **Specifications**
- **Preparation for Servicing**
- **Adjustment Procedures**
- **Schematic Diagrams**
- **CBA's**
- **Exploded Views**
- **Parts List**

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SPECIFICATIONS

Description	Unit	Minimum	Nominal	Maximum	Remark
1. Video					
1-1. Video Output (PB)	Vp-p	0.8	1.0	1.2	FL6A
1-2. Video Output (R/P)	Vp-p	0.8	1.0	1.2	
1-3. Video S/N Y (R/P)	dB	40	45		SP Mode, W/O Burst
1-4. Video Color S/N AM (R/P)	dB	37	41		SP Mode
1-5. Video Color S/N PM (R/P)	dB	30	36		SP Mode
1-6. Resolution (PB)	Line	230	245		SP Mode
2. Servo					
2-1. Jitter Low	µsec		0.07	0.12	SP Mode
2-2. Wow & Flutter	%		0.3	0.5	SP Mode
3. Normal Audio					
3-1. Output (PB)	dBV	-9	-6	-3	SP Mode
3-2. Output (R/P)	dBV	-9	-6	-1.5	SP Mode
3-3. S/N (R/P)	dB	36	41		SP Mode
3-4. Distortion (R/P)	%		1.0	4.0	SP Mode
3-5. Freq. resp (R/P) at 200Hz	dB	-7	-4		SP Mode
(-20dB ref. 1kHz) at 6kHz	dB	-10	-4		SP Mode
4. Tuner					
4-1. Video output	Vp-p	0.8	1.0	1.2	E-E Mode
4-2. Video S/N	dB	39	42		E-E Mode
4-3. Audio output	dB	-10	-6	-2	E-E Mode
4-4. Audio S/N	dB	40	46		E-E Mode
5. Hi-Fi Audio					
5-1. Output	dBV	-12	-8	-4	SP Mode
5-2. Dynamic Range	dB	70	85		SP Mode
5-3. Freq. resp (6dB B.W)	Hz		20 ~ 20K		SP Mode

Note: Nominal specs represent the design specs. All units should be able to approximate these – some will exceed and some may drop slightly below these specs. Limit specs represent the absolute worst condition that still might be considered acceptable; In no case should a unit fail to meet limit specs.

IMPORTANT SAFETY PRECAUTIONS

Product Safety Notice

Some electrical and mechanical parts have special safety-related characteristics which are often not evident from visual inspection, nor can the protection they give necessarily be obtained by replacing them with components rated for higher voltage, wattage, etc. Parts that have special safety characteristics are identified by a ⚠ on schematics and in parts lists. Use of a substitute replacement that does not have the same safety characteristics as the recommended replacement part might create shock, fire, and/or other hazards. The Product's Safety is under review continuously and new instructions are issued whenever appropriate. Prior to shipment from the factory, our products are carefully inspected to confirm with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

Precautions during Servicing

A. Parts identified by the ⚠ symbol are critical for safety. Replace only with part number specified.

B. In addition to safety, other parts and assemblies are specified for conformance with regulations applying to spurious radiation. These must also be replaced only with specified replacements.
Examples: RF converters, RF cables, noise blocking capacitors, and noise blocking filters, etc.

C. Use specified internal wiring. Note especially:

1)Wires covered with PVC tubing
2)Double insulated wires
3)High voltage leads

D. Use specified insulating materials for hazardous live parts. Note especially:

1)Insulation tape
2)PVC tubing
3)Spacers
4)Insulators for transistors

E. When replacing AC primary side components (transformers, power cord, etc.), wrap ends of wires securely about the terminals before soldering.

F. Observe that the wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).

G. Check that replaced wires do not contact sharp edges or pointed parts.

H. When a power cord has been replaced, check that 5 - 6 kg of force in any direction will not loosen it.

I. Also check areas surrounding repaired locations.

J. Be careful that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

K. Crimp type wire connector
The power transformer uses crimp type connectors which connect the power cord and the primary side of the transformer. When replacing the transformer, follow these steps carefully and precisely to prevent shock hazards.
Replacement procedure

1)Remove the old connector by cutting the wires at a point close to the connector.
Important: Do not re-use a connector. (Discard it.)

2)Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

3)Align the lengths of the wires to be connected. Insert the wires fully into the connector.

4)Use a crimping tool to crimp the metal sleeve at its center. Be sure to crimp fully to the complete closure of the tool.

L. When connecting or disconnecting the internal connectors, first, disconnect the AC plug from the AC outlet.

Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts, and wires have been returned to their original positions. Afterwards, do the following tests and confirm the specified values to verify compliance with safety standards.

1. Clearance Distance

When replacing primary circuit components, confirm specified clearance distance (d) and (d') between soldered terminals, and between terminals and surrounding metallic parts. (See Fig. 1)

Table 1 : Ratings for selected area

AC Line Voltage	Clearance Distance (d), (d')
220 to 240 V	≥ 3mm(d) ≥ 6 mm(d')

Note: This table is unofficial and for reference only.
Be sure to confirm the precise values.

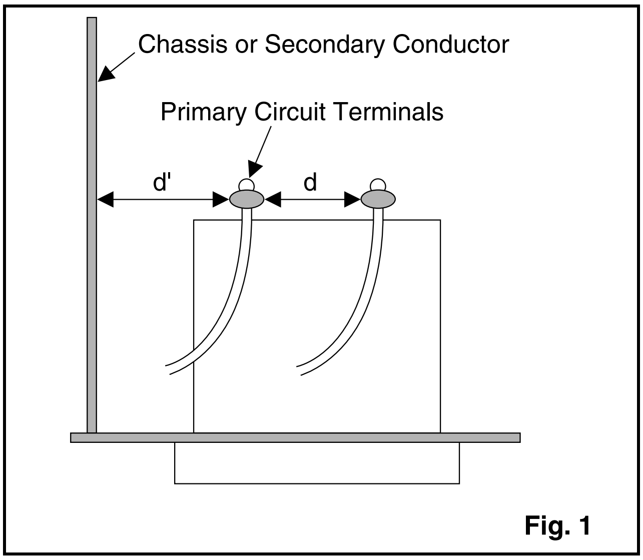


Fig. 1

2. Leakage Current Test

Confirm the specified (or lower) leakage current between B (earth ground, power cord plug prongs) and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.) is lower than or equal to the specified value in the table below.

Measuring Method (Power ON) :

Insert load Z between B (earth ground, power cord plug prongs) and exposed accessible parts. Use an AC voltmeter to measure across the terminals of load Z. See Fig. 2 and the following table.

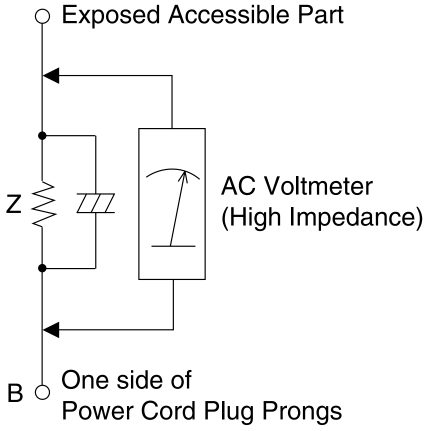


Fig. 2

Table 2: Leakage current ratings for selected areas

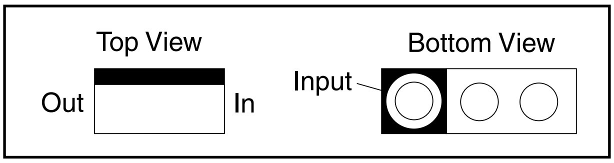
AC Line Voltage	Load Z	Leakage Current (i)	One side of power cord plug prongs (B) to:
220 to 240 V	2kΩ RES. Connected in parallel	i≤0.7mA AC Peak i≤2mA DC	RF or Antenna terminals
	50kΩ RES. Connected in parallel	i≤0.7mA AC Peak i≤2mA DC	A/V Input, Output

Note: This table is unofficial and for reference only. Be sure to confirm the precise values.

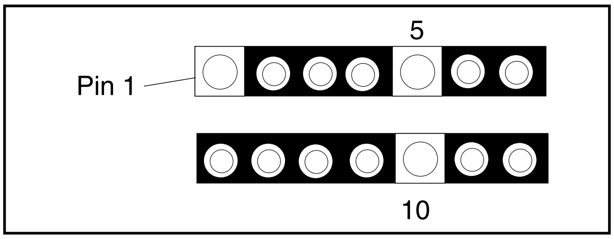
STANDARD NOTES FOR SERVICING

Circuit Board Indications

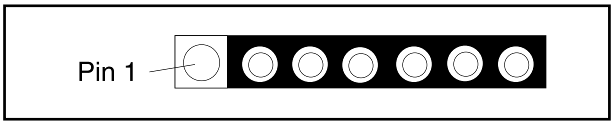
a. The output pin of the 3 pin Regulator ICs is indicated as shown.



b. For other ICs, pin 1 and every fifth pin are indicated as shown.

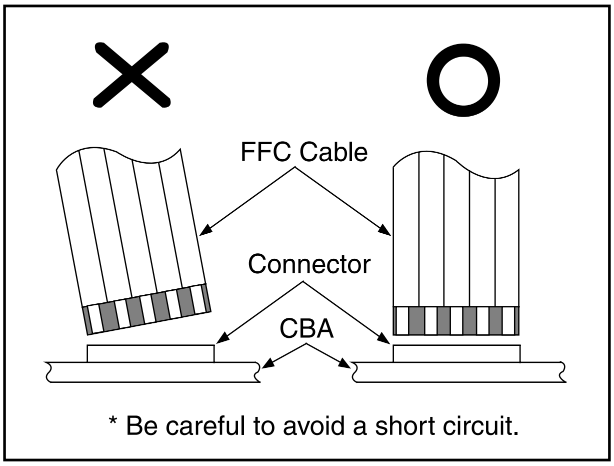


c. The 1st pin of every male connector is indicated as shown.



Instructions for Connectors

1. When you connect or disconnect the FFC (Flexible Foil Connector) cable, be sure to first disconnect the AC cord.
2. FFC (Flexible Foil Connector) cable should be inserted parallel into the connector, not at an angle.



* Be careful to avoid a short circuit.

Pb (Lead) Free Solder

When soldering, be sure to use the Pb free solder.

How to Remove / Install Flat Pack-IC

1. Removal

With Hot-Air Flat Pack-IC Desoldering Machine:.

(1) Prepare the hot-air flat pack-IC desoldering machine, then apply hot air to the Flat Pack-IC (about 5 to 6 seconds). (Fig. S-1-1)

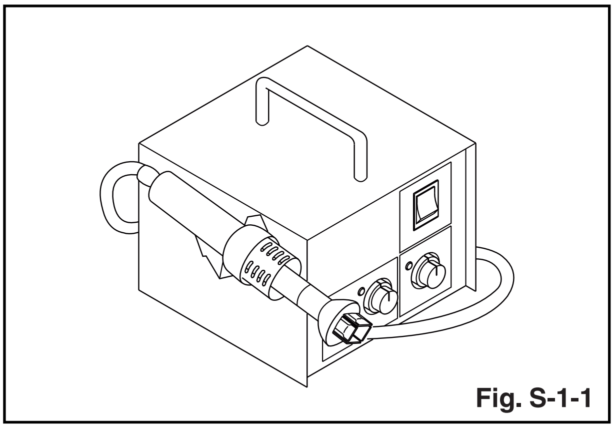


Fig. S-1-1

(2) Remove the flat pack-IC with tweezers while applying the hot air.

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Caution:

1. The Flat Pack-IC shape may differ by models. Use an appropriate hot-air flat pack-IC desoldering machine, whose shape matches that of the Flat Pack-IC.
2. Do not supply hot air to the chip parts around the flat pack-IC for over 6 seconds because damage to the chip parts may occur. Put masking tape around the flat pack-IC to protect other parts from damage. (Fig. S-1-2)

3. The flat pack-IC on the CBA is affixed with glue, so be careful not to break or damage the foil of each pin or the solder lands under the IC when removing it.

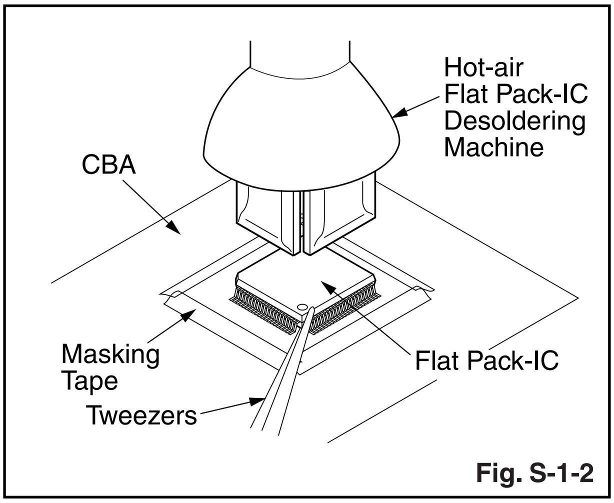


Fig. S-1-2

With Soldering Iron:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

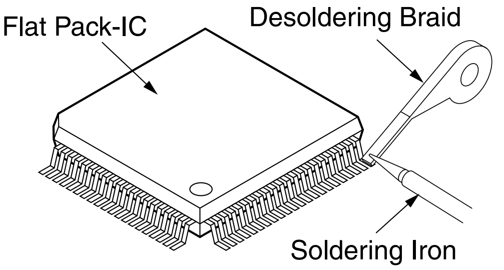


Fig. S-1-3

(2) Lift each lead of the flat pack-IC upward one by one, using a sharp pin or wire to which solder will not adhere (iron wire). When heating the pins, use a fine tip soldering iron or a hot air desoldering machine. (Fig. S-1-4)

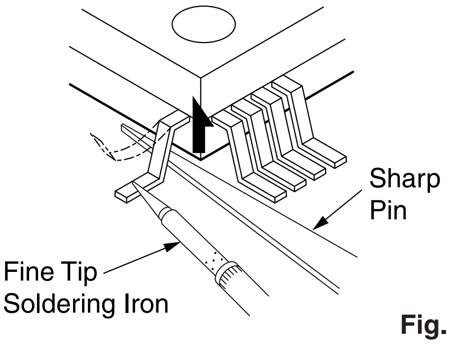


Fig. S-1-4

(3) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(4) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

With Iron Wire:

(1) Using desoldering braid, remove the solder from all pins of the flat pack-IC. When you use solder flux which is applied to all pins of the flat pack-IC, you can remove it easily. (Fig. S-1-3)

(2) Affix the wire to a workbench or solid mounting point, as shown in Fig. S-1-5.

(3) While heating the pins using a fine tip soldering iron or hot air blower, pull up the wire as the solder melts so as to lift the IC leads from the CBA contact pads as shown in Fig. S-1-5

(4) Bottom of the flat pack-IC is fixed with glue to the CBA; when removing entire flat pack-IC, first apply soldering iron to center of the flat pack-IC and heat up. Then remove (glue will be melted). (Fig. S-1-6)

(5) Release the flat pack-IC from the CBA using tweezers. (Fig. S-1-6)

Note:

When using a soldering iron, care must be taken to ensure that the flat pack-IC is not being held by glue. When the flat pack-IC is removed from the CBA, handle it gently because it may be damaged if force is applied.

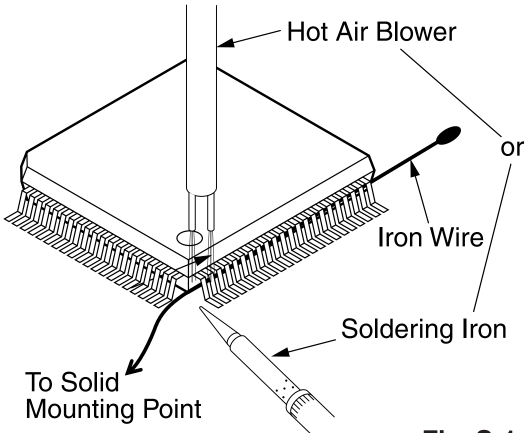


Fig. S-1-5

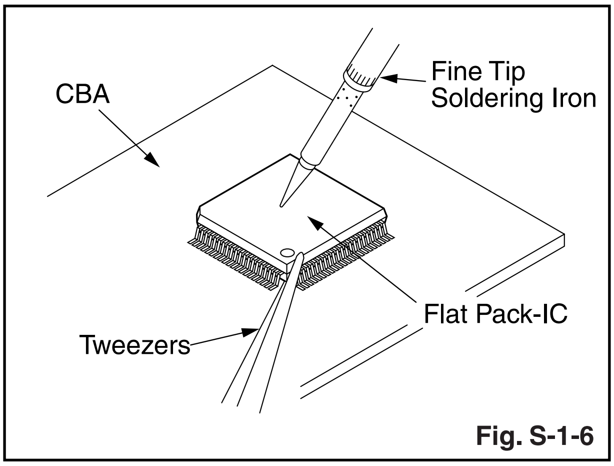


Fig. S-1-6

2. Installation

(1) Using desoldering braid, remove the solder from the foil of each pin of the flat pack-IC on the CBA so you can install a replacement flat pack-IC more easily.

(2) The " ● " mark on the flat pack-IC indicates pin 1. (See Fig. S-1-7.) Be sure this mark matches the 1 on the PCB when positioning for installation. Then presolder the four corners of the flat pack-IC. (See Fig. S-1-8.)

(3) Solder all pins of the flat pack-IC. Be sure that none of the pins have solder bridges.

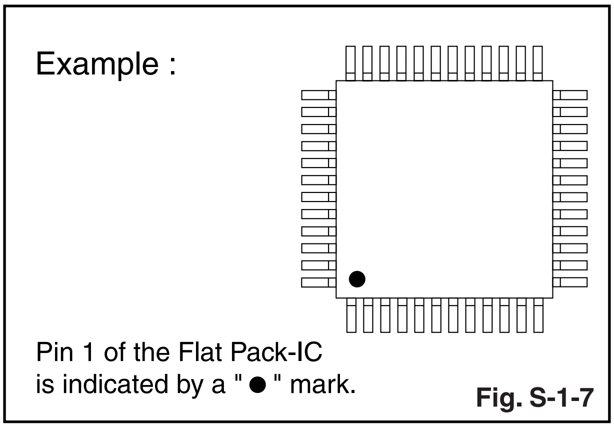


Fig. S-1-7

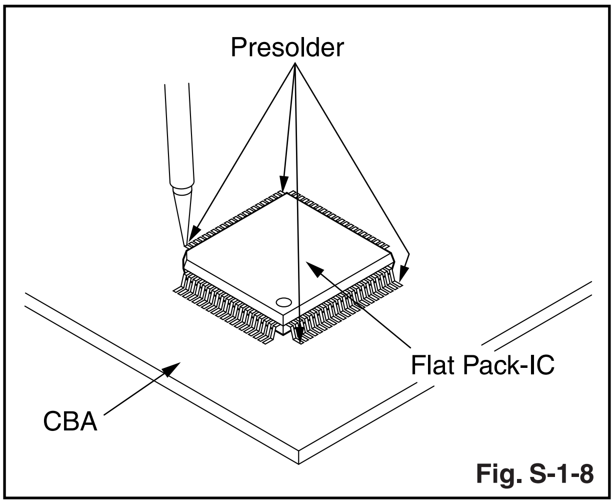


Fig. S-1-8

Instructions for Handling Semi-conductors

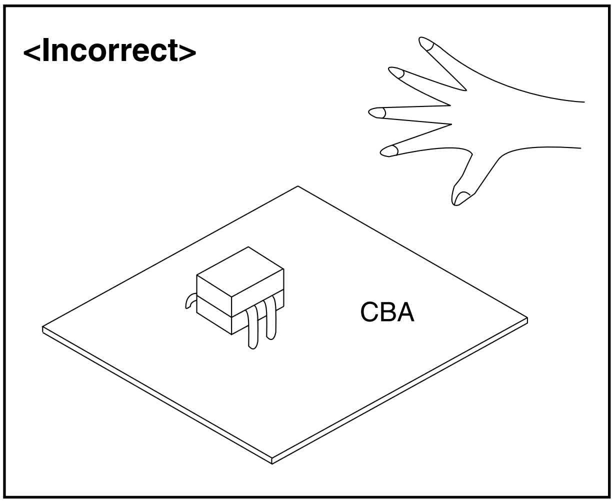
Electrostatic breakdown of the semi-conductors may occur due to a potential difference caused by electrostatic charge during unpacking or repair work.

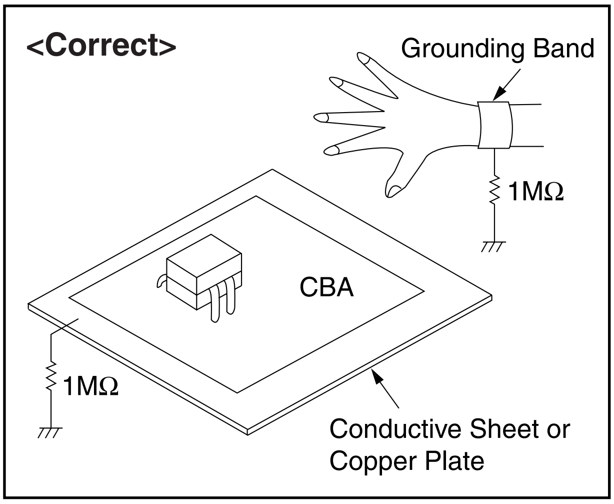
1. Ground for Human Body

Be sure to wear a grounding band (1MΩ) that is properly grounded to remove any static electricity that may be charged on the body.

2. Ground for Workbench

Be sure to place a conductive sheet or copper plate with proper grounding (1MΩ) on the workbench or other surface, where the semi-conductors are to be placed. Because the static electricity charge on clothing will not escape through the body grounding band, be careful to avoid contacting semi-conductors with your clothing.





PREPARATION FOR SERVICING

How to Enter the Service Mode

About Optical Sensors

Caution:

An optical sensor system is used for the Tape Start and End Sensors on this equipment. Carefully read and follow the instructions below. Otherwise the unit may operate erratically.

What to do for preparation

Insert a tape into the Deck Mechanism Assembly and press the PLAY button. The tape will be loaded into the Deck Mechanism Assembly. Make sure the power is on, connect TP507 (S-INH) to GND. This will stop the function of Tape Start Sensor, Tape End Sensor and Reel Sensors. (If these TPs are connected before plugging in the unit, the function of the sensors will stay valid.) See Fig. 1.

Note: Because the Tape End Sensors are inactive, do not run a tape all the way to the start or the end of the tape to avoid tape damage.

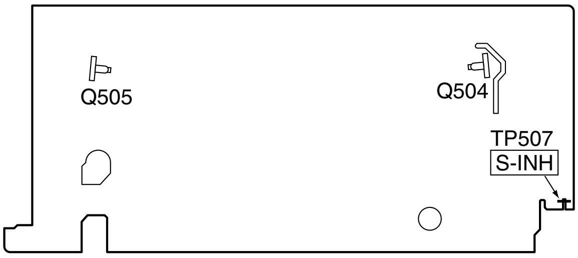
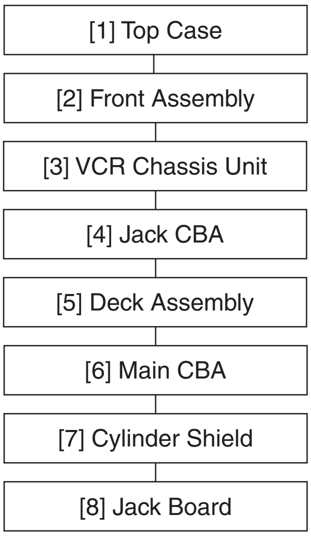


Fig. 1

CABINET DISASSEMBLY INSTRUCTIONS

1. Disassembly Flowchart

This flowchart indicates the disassembly steps to gain access to item(s) to be serviced. When reassembling, follow the steps in reverse order. Bend, route, and dress the cables as they were originally.



2. Disassembly Method

ID/ LOC .No.	PART	REMOVAL		
		Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	Note
[1]	Top Case	D1	7(S-1)	-
[2]	Front Assembly	D2	*3(L-1),*4(L-2)	-
[3]	VCR Chassis Unit	D3-1 D3-2	5(S-2), 3(S-3), (S-4)	1
[4]	Jack CBA	D4	Desolder, (S-5)	-
[5]	Deck Assembly	D5 D6	2(S-6), Desolder	2,3
[6]	Main CBA	D5	*(L-3)	-
[7]	Cylinder Shield	D5	(S-7)	-
[8]	Jack Board	D5	----------	-
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)

(1): Identification (location) No. of parts in the figures

(2): Name of the part

(3): Figure Number for reference

(4): Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, L=Locking Tab, S=Screw,
CN=Connector
*=Unhook, Unlock, Release, Unplug, or Desolder
e.g. 2(S-2) = two Screws (S-2),
2(L-2) = two Locking Tabs (L-2)

(5): Refer to “Reference Notes.”

Reference Notes

CAUTION: Locking Tabs (L-1) and (L-2) are fragile. Be careful not to break them.

1. Remove five Screws (S-2), three Screws (S-3) and Screw (S-4). Then, slowly lift the VCR Chassis Unit (Deck Assembly, Jack CBA and Main CBA) up.
2. When reassembling, solder wire jumpers as shown in Fig. D5.
3. Before installing the Deck Assembly, be sure to place the pin of LD-SW on Main CBA as shown in Fig. D6. Then, install the Deck Assembly while aligning the hole of Cam Gear with the pin of LD-SW, the shaft of Cam Gear with the hole of LD-SW as shown in Fig. D6.

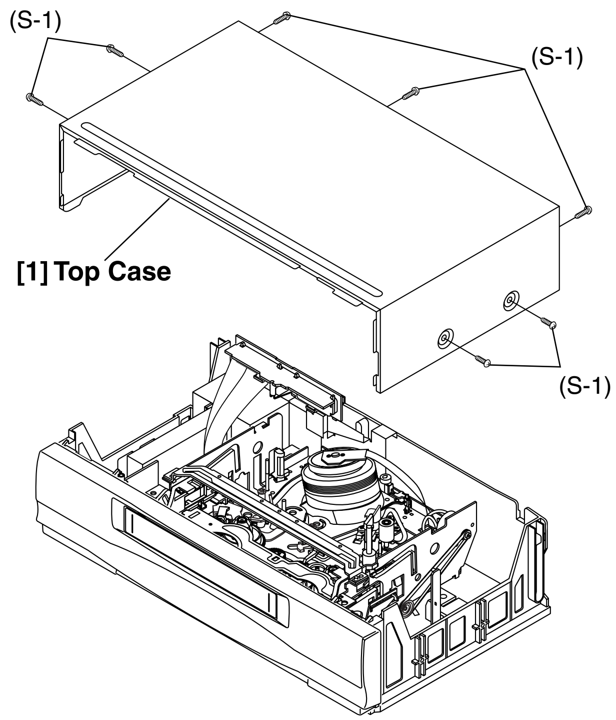


Fig. D1

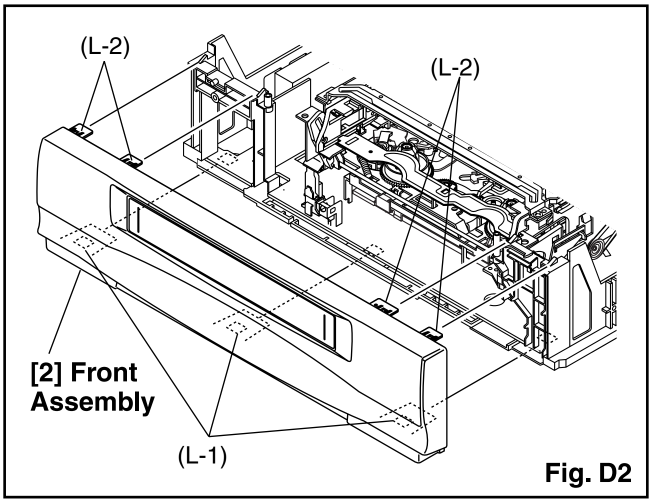


Fig. D2

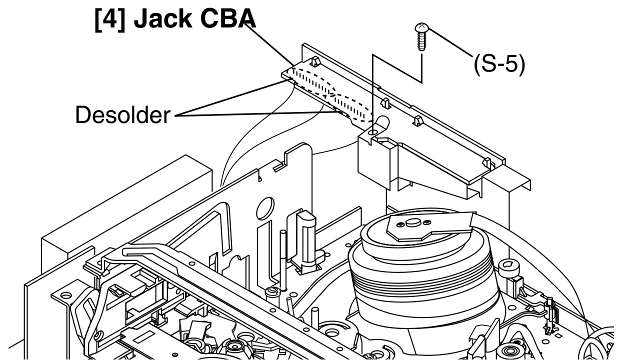


Fig. D4

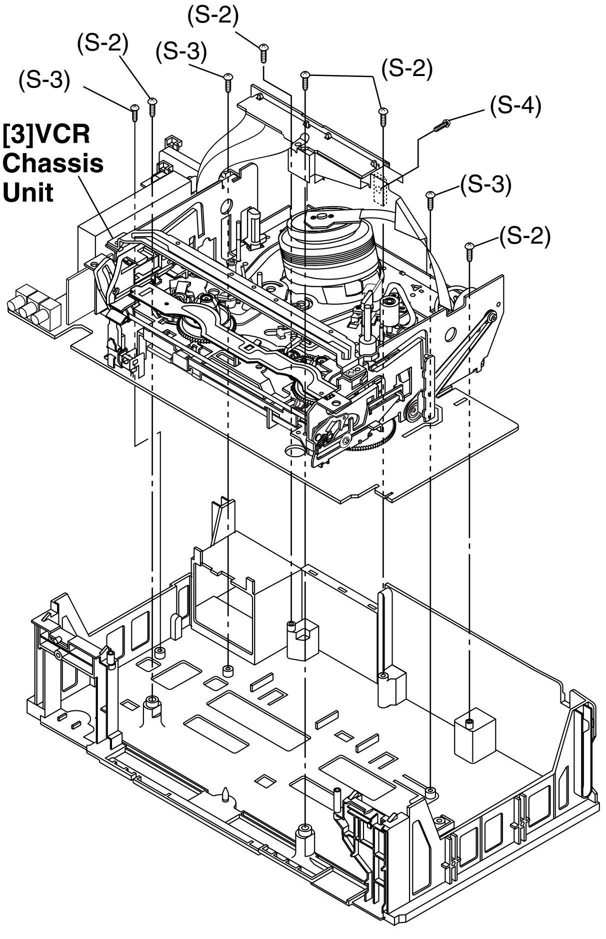
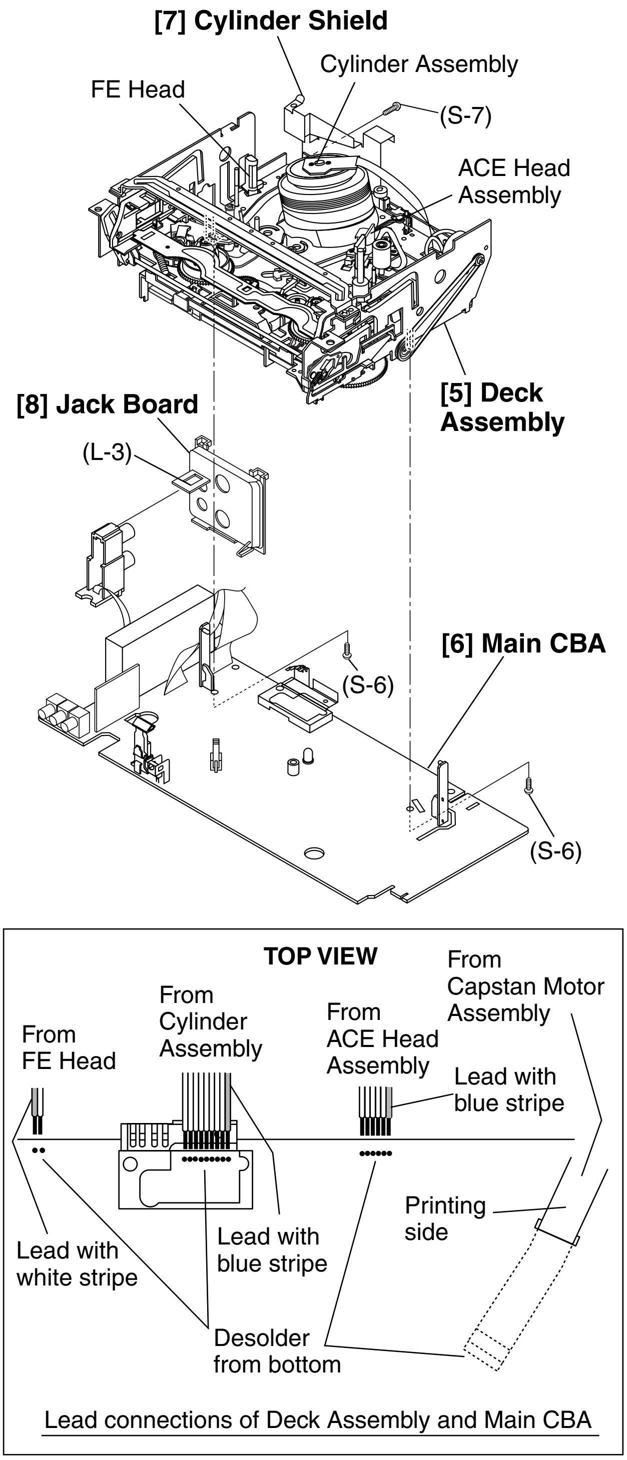


Fig. D3



Lead connections of Deck Assembly and Main CBA

Fig. D5

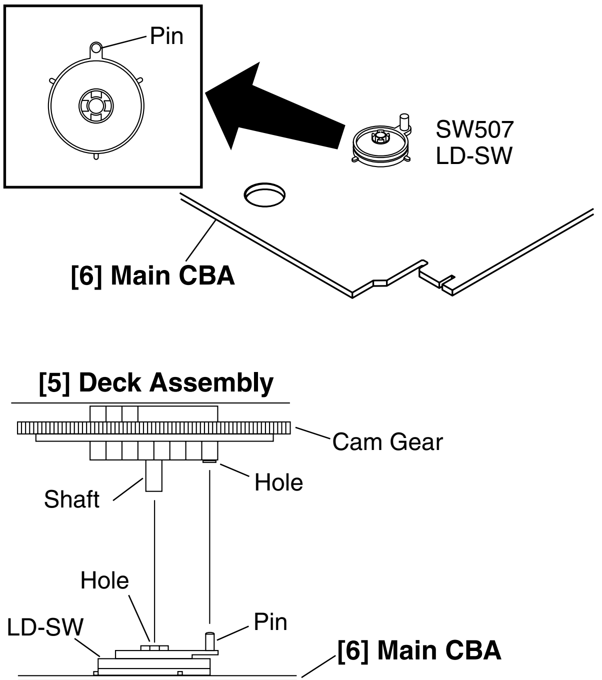


Fig. D6

ELECTRICAL ADJUSTMENT INSTRUCTIONS

General Note: "CBA" is an abbreviation for "Circuit Board Assembly."

NOTE:

1. Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to do these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.
2. To perform these alignment / confirmation procedures, make sure that the tracking control is set in the center position: Press either "▼" or "▲" button on the remote control unit first, then the "PLAY" button (Front Panel only).

Test Equipment Required

1. Oscilloscope: Dual-trace with 10:1 probe,
   V-Range: 0.001~50V/Div.,
   F-Range: DC~AC-20MHz
2. Alignment Tape (FL6A)

Head Switching Position Adjustment

Purpose:

To determine the Head Switching position during playback.

Symptom of Misadjustment:

May cause Head Switching noise or vertical jitter in the picture.

Test point	Adj.Point	Mode	Input
J23(V-OUT) TP502(RF-SW) GND	VR501 (Switching Point) (MAIN CBA)	PLAY (SP)	-----

Tape	Measurement Equipment	Spec.
FL6A	Oscilloscope	6.5H±1H (412.7µs±63.5µs)

Connections of Measurement Equipment

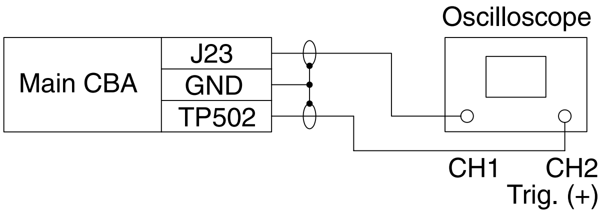
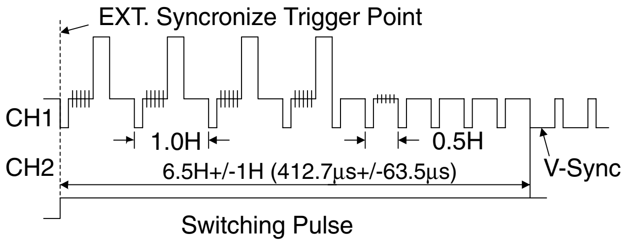


Figure 1



Reference Notes:

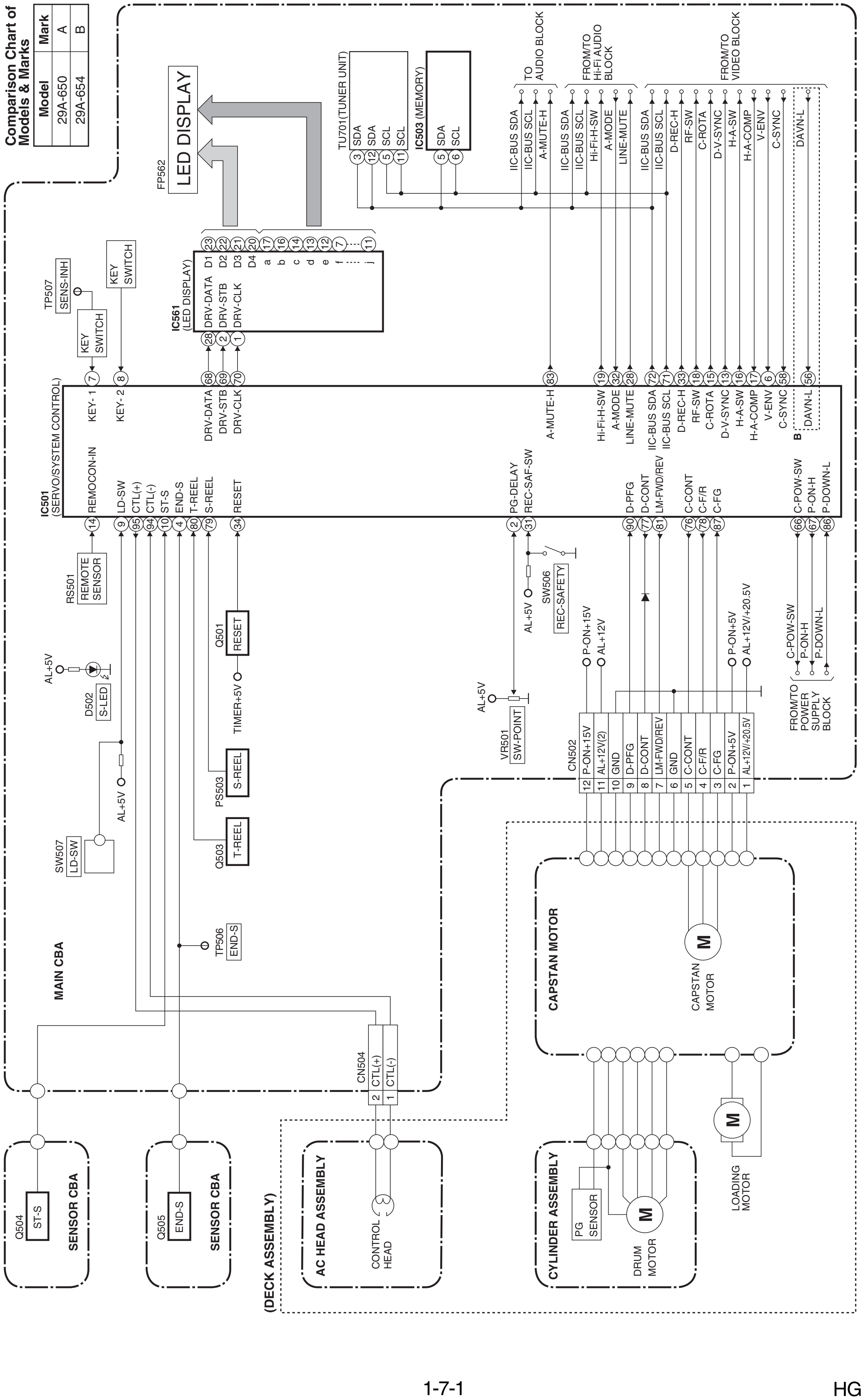
Playback the Alignment tape and adjust VR501 so that the V-sync front edge of the CH1 video output waveform is at the 6.5H±1H(412.7µs±63.5µs) delayed position from the rising edge of the CH2 head switching pulse waveform.

BLOCK DIAGRAMS

Servo/System Control Block Diagram

Comparison Chart of Models & Marks

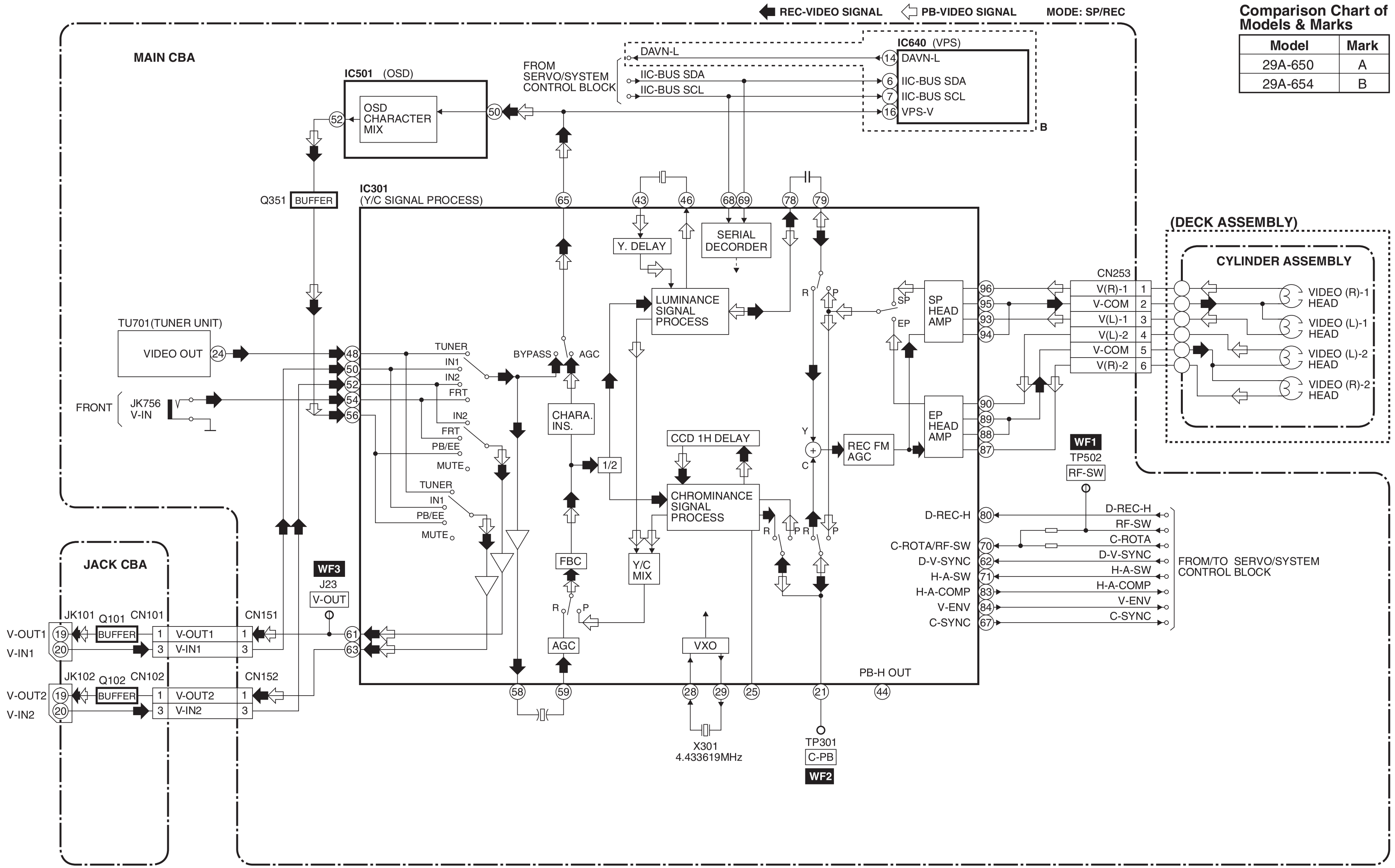
Model	Mark
29A-650	A
29A-654	B



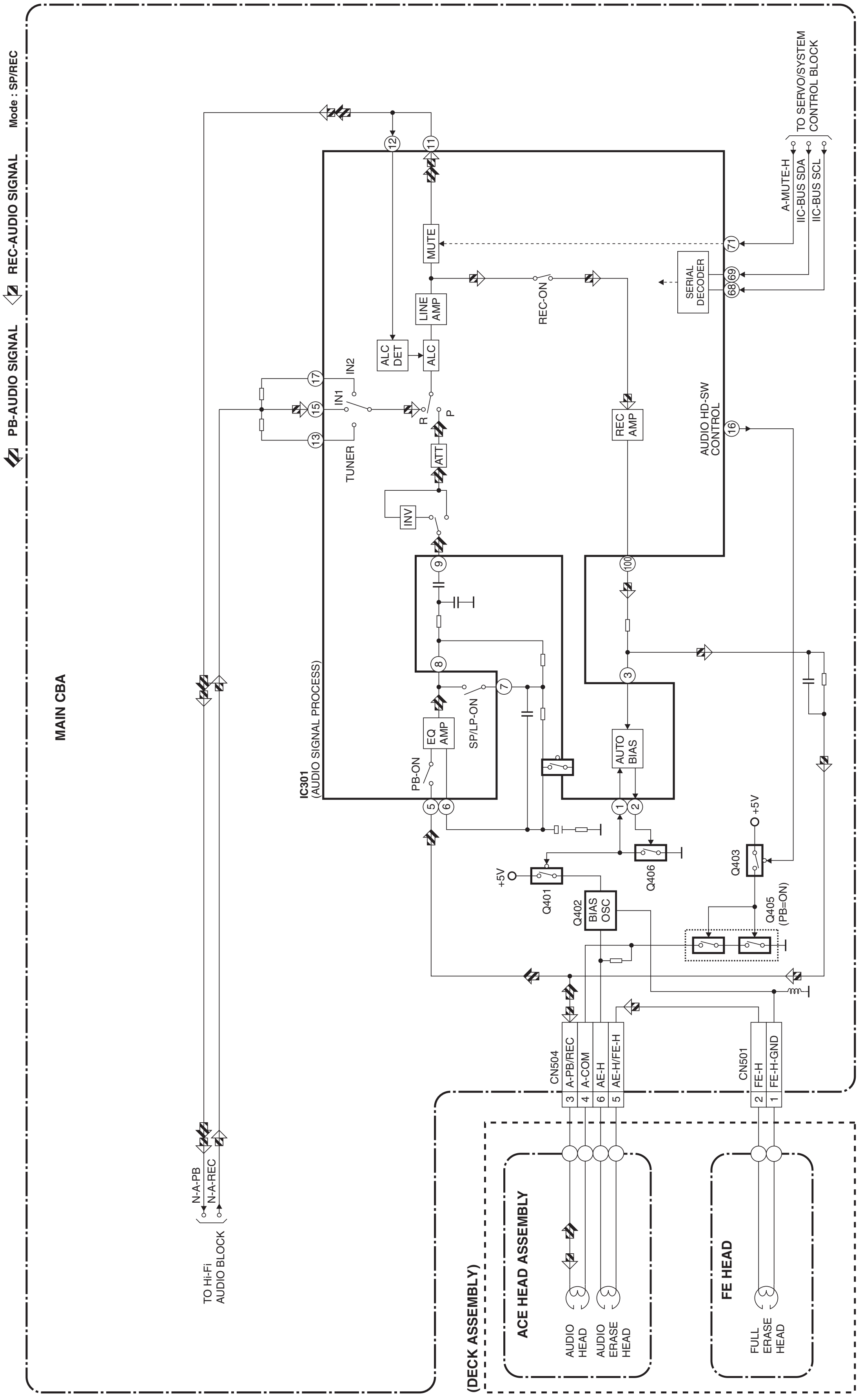
Video Block Diagram

Comparison Chart of Models & Marks

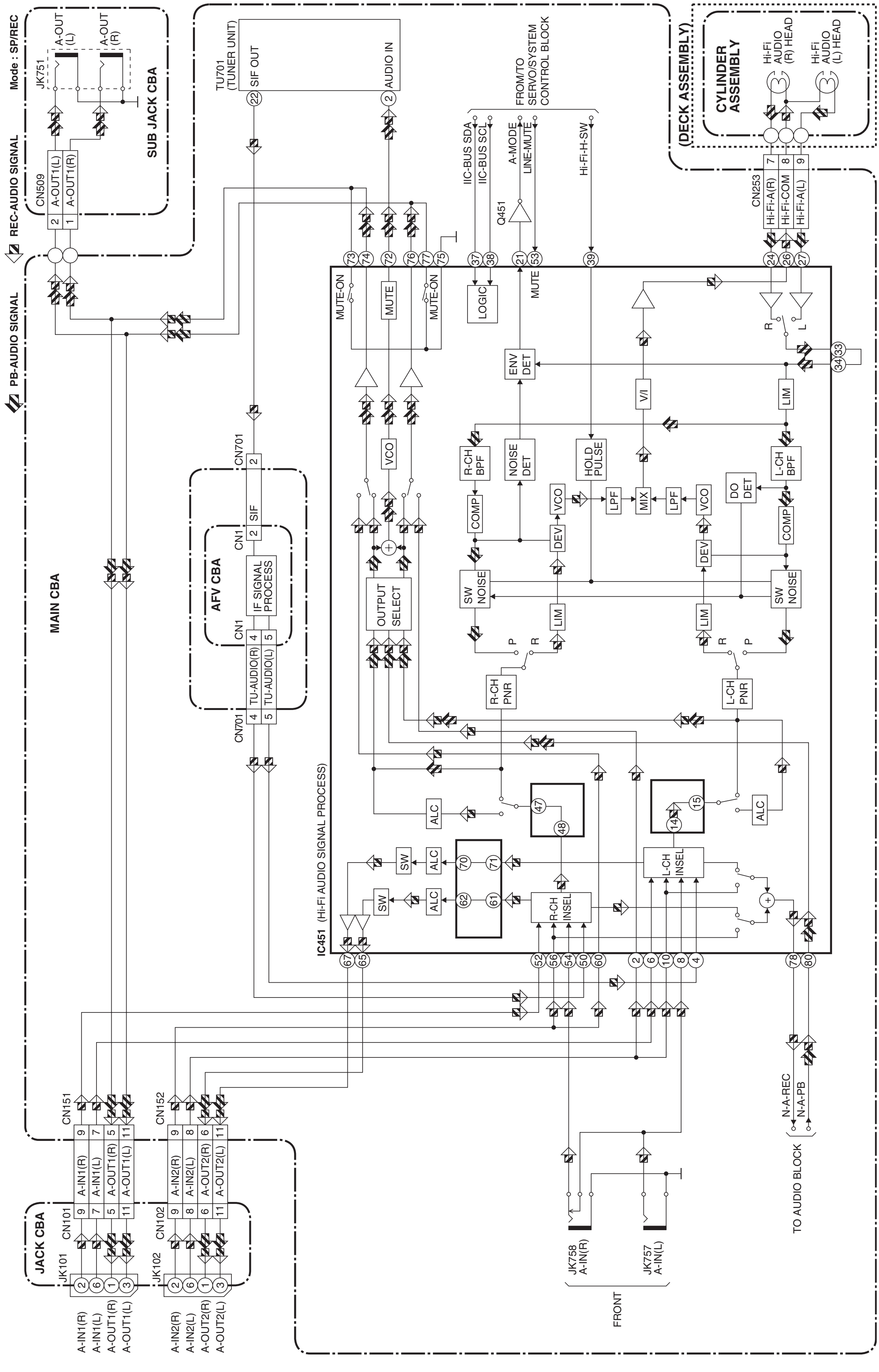
Model	Mark
29A-650	A
29A-654	B



Audio Block Diagram



Hi-Fi Audio Block Diagram

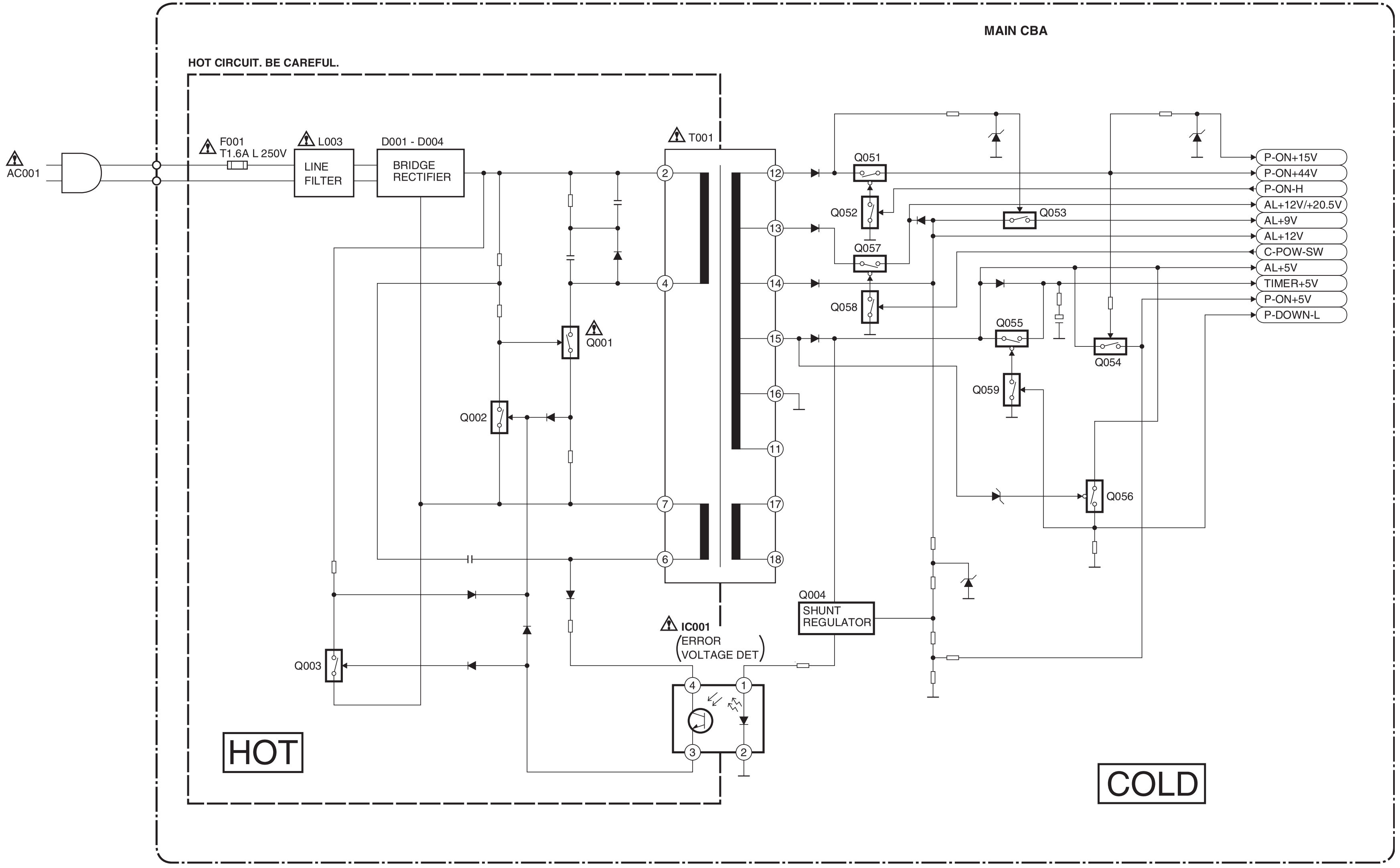


Power Supply Block Diagram

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE T1.6AL/250V FUSE.

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

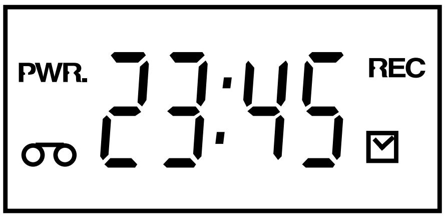


FUNCTION INDICATOR SYMBOLS

Note:

The following symbols will appear on the indicator panel to indicate the current mode or operation of the VCR. On-screen modes will also be momentarily displayed on the tv screen when you press the operation buttons.

Display panel



MODE	INDICATOR ACTIVE	
POWER ON	" PWR."	ON
CASSETTE "IN" CASSETTE "OUT"	" ꝏ " " ꝏ "	ON OFF
CLOCK	" 88:88 "	ON
REC	" REC "	ON
REC PAUSE	" REC "	Blinks at 0.8Hz interval
T-REC,OTR	" ☑ "	ON (T-REC OFF,T-REC incomplete Blinks at 0.8Hz interval)
RF OUT	RF out channel number is displayed on the indicator panel.	
S-INH condition	All modes	Blinks at 0.8Hz interval
All lighting mode	All characters	ON
When reel and capstan mechanism is not functioning correctly	"⏏ R" is displayed on a TV screen. (Refer to Fig. 1.)	
When tape loading mechanism is not functioning correctly	"⏏ T" is displayed on a TV screen. (Refer to Fig. 2.)	
When cassette loading mechanism is not functioning correctly	"⏏ C" is displayed on a TV screen. (Refer to Fig. 3.)	
When the drum is not working properly	"⏏ D" is displayed on a TV screen. (Refer to Fig. 4.)	
P-ON Power safety detection	"⏏ P" is displayed on a TV screen. (Refer to Fig. 5.)	

TV screen

Note:

OSD for mechanical error will be displayed for 5 sec. after the mechanical error occurs.

When reel and capstan mechanism is not functioning correctly

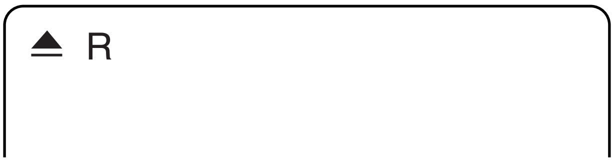


Fig. 1

When tape loading mechanism is not functioning correctly

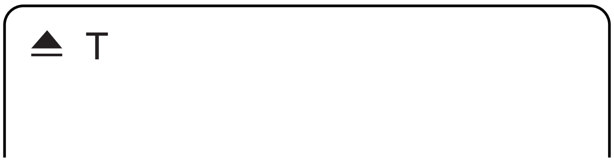


Fig. 2

When cassette loading mechanism is not functioning correctly

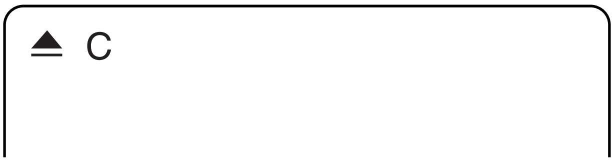


Fig. 3

When the drum is not working properly

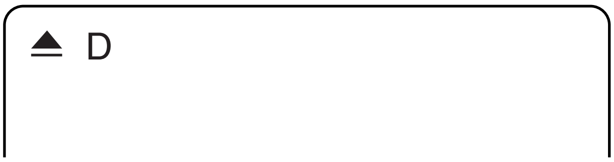


Fig. 4

P-ON Power safety detection

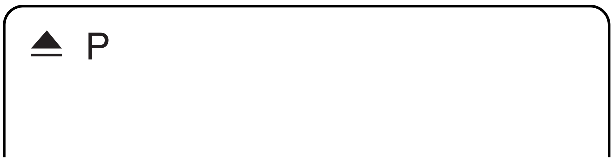


Fig. 5

SCHEMATIC DIAGRAMS / CBA'S AND TEST POINTS

Standard Notes

WARNING

Many electrical and mechanical parts in this chassis have special characteristics. These characteristics often pass unnoticed and the protection afforded by them cannot necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts that have these special safety characteristics are identified in this manual and its supplements; electrical components having such features are identified by the mark " ⚠ " in the schematic diagram and the parts list. Before replacing any of these components, read the parts list in this manual carefully. The use of substitute replacement parts that do not have the same safety characteristics as specified in the parts list may create shock, fire, or other hazards.

Capacitor Temperature Markings

Mark	Capacity change rate	Standard temperature	Temperature range
(B)	±10%	20°C	-25~+85°C
(F)	+30 - 80%	20°C	-25~+85°C
(SR)	±15%	20°C	-25~+85°C
(Z)	+30 - 80%	20°C	-10~+70°C

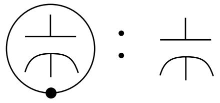
Notes:

1. Do not use the part number shown on these drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since these drawings were prepared.
2. All resistance values are indicated in ohms ($K=10^3$, $M=10^6$).
3. Resistor wattages are 1/4W or 1/6W unless otherwise specified.
4. All capacitance values are indicated in μF ($P=10^{-6}$ μF).
5. All voltages are DC voltages unless otherwise specified.
6. Electrical parts such as capacitors, connectors, diodes, IC's, transistors, resistors, switches, and fuses are identified by four digits. The first two digits are not shown for each component. In each block of the diagram, there is a note such as shown below to indicate these abbreviated two digits.

Capacitors and transistors are represented by the following symbols.

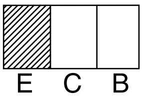
CBA Symbols

(Top View) (Bottom View)



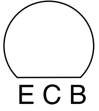
: Electrolytic Capacitor

(Bottom View)



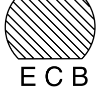
: Transistor or Digital Transistor

(Top View)



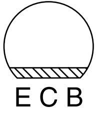
NPN Transistor

(Top View)



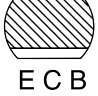
PNP Transistor

(Top View)



NPN Digital Transistor

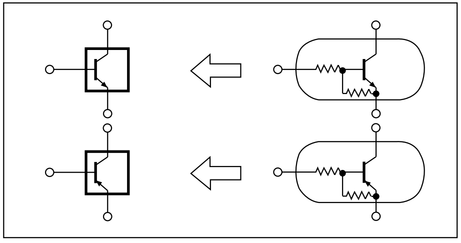
(Top View)



PNP Digital Transistor

Schematic Diagram Symbols

Digital Transistor



LIST OF CAUTION, NOTES, AND SYMBOLS USED IN THE SCHEMATIC DIAGRAMS ON THE FOLLOWING PAGES:

1. **CAUTION:**
FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE.

2. **CAUTION:**
Fixed Voltage (or Auto voltage selectable) power supply circuit is used in this unit.
If Main Fuse (F001) is blown, first check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

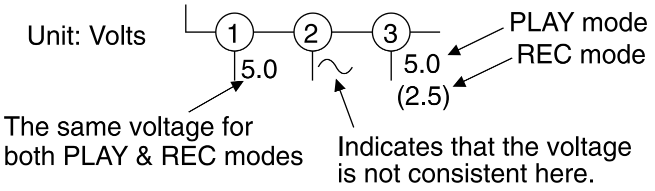
3. **Note:**

(1) Do not use the part number shown on the drawings for ordering. The correct part number is shown in the parts list, and may be slightly different or amended since the drawings were prepared.

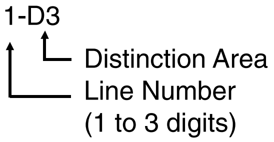
(2) To maintain original function and reliability of repaired units, use only original replacement parts which are listed with their part numbers in the parts list section of the service manual.

4. Mode: SP/REC

5. Voltage indications for PLAY and REC modes on the schematics are as shown below:

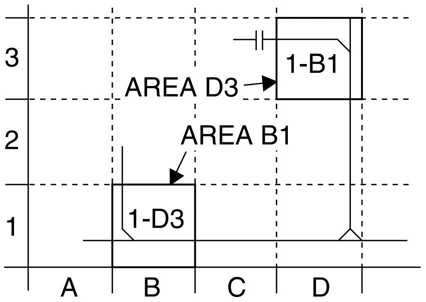

Unit: Volts
1
2
3
5.0
5.0
(2.5)
PLAY mode
REC mode
The same voltage for both PLAY & REC modes
Indicates that the voltage is not consistent here.

6. How to read converged lines



Examples:

1. "1-D3" means that line number "1" goes to area "D3".
2. "1-B1" means that line number "1" goes to area "B1".



7. Test Point Information

⦶ : Indicates a test point with a jumper wire across a hole in the PCB.

▭→ : Used to indicate a test point with a component lead on foil side.

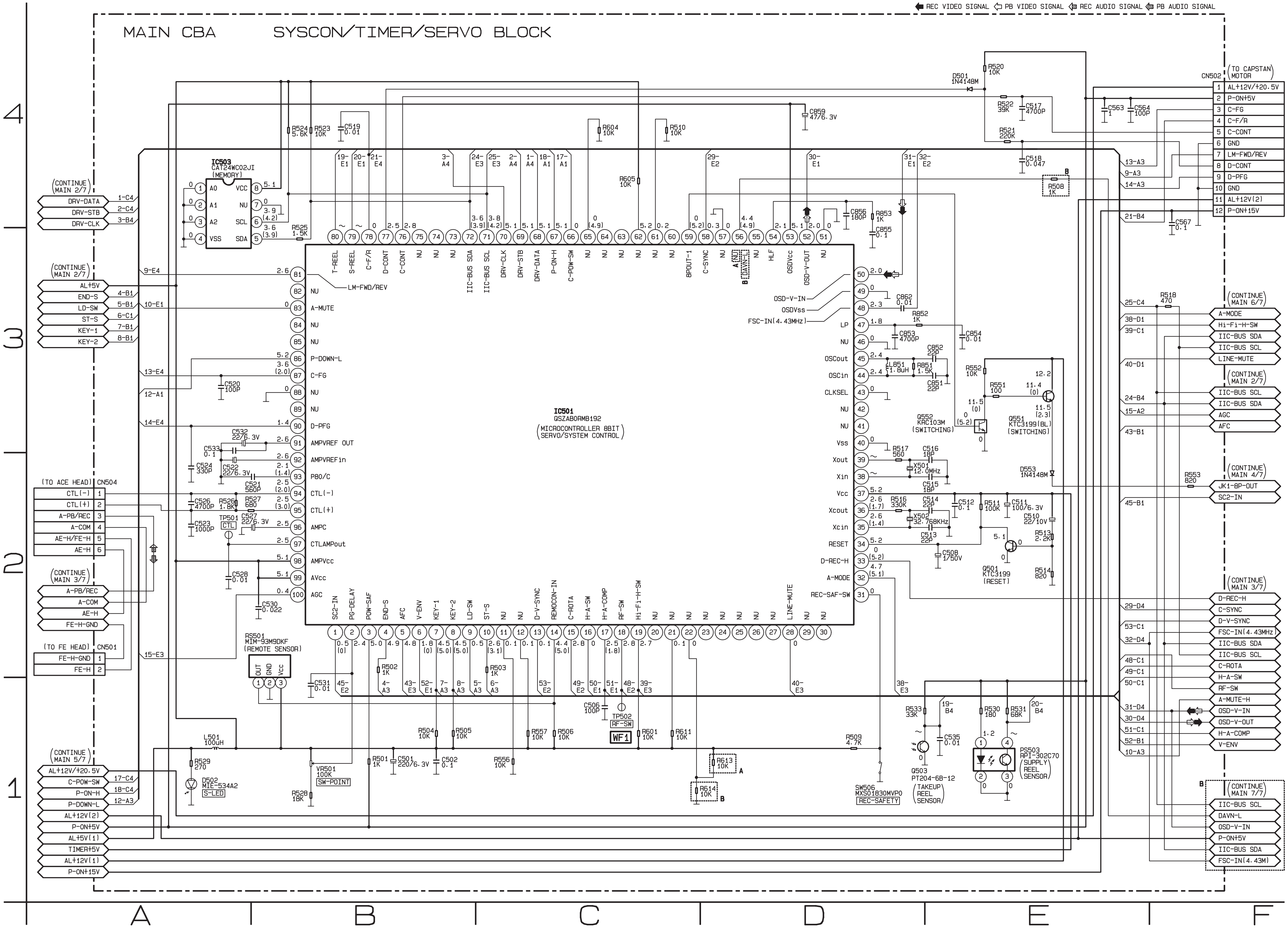
▨ : Used to indicate a test point with no test pin.

● : Used to indicate a test point with a test pin.

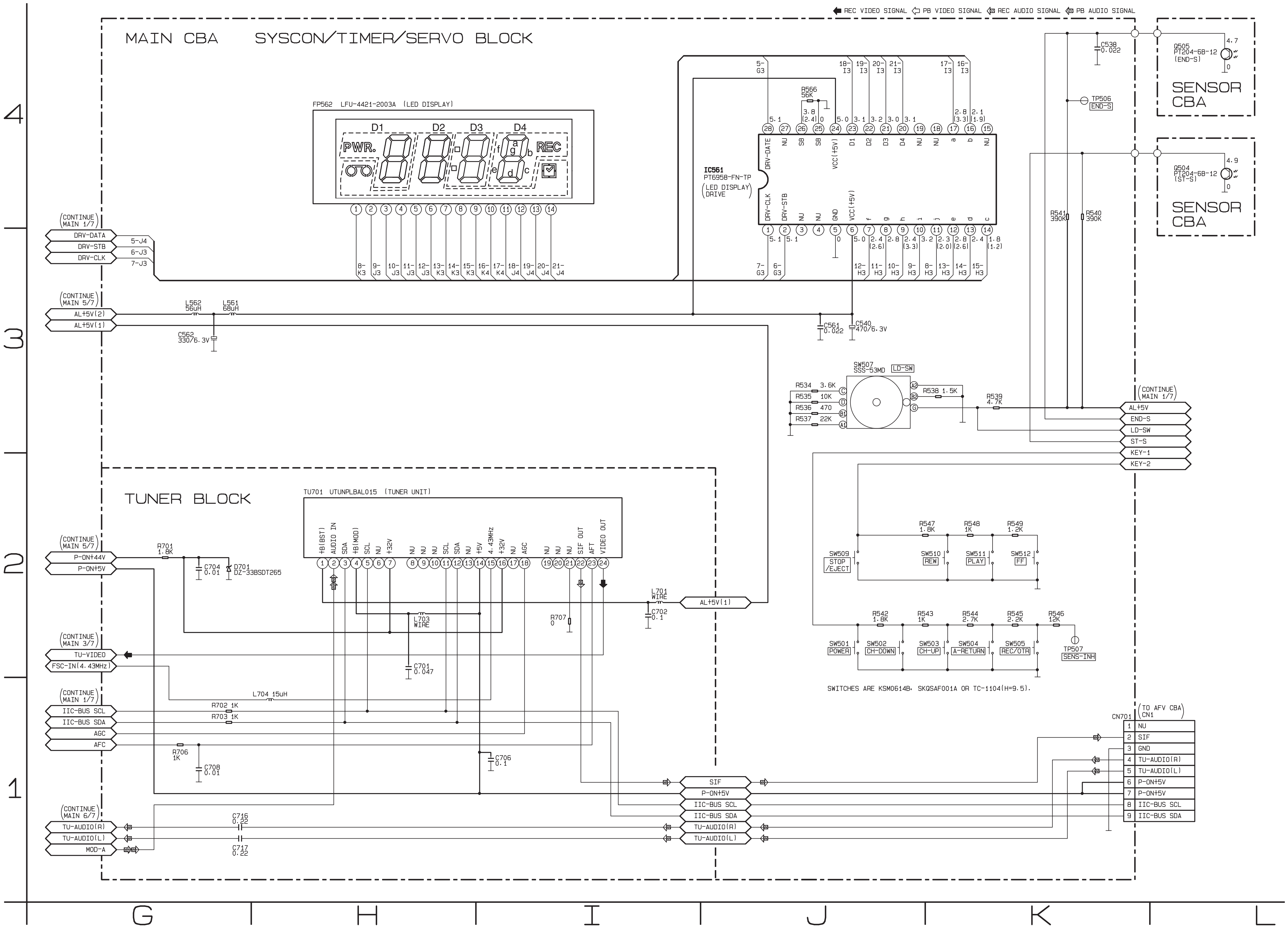
Main 1/7 Schematic Diagram

Comparison Chart of Models and Marks

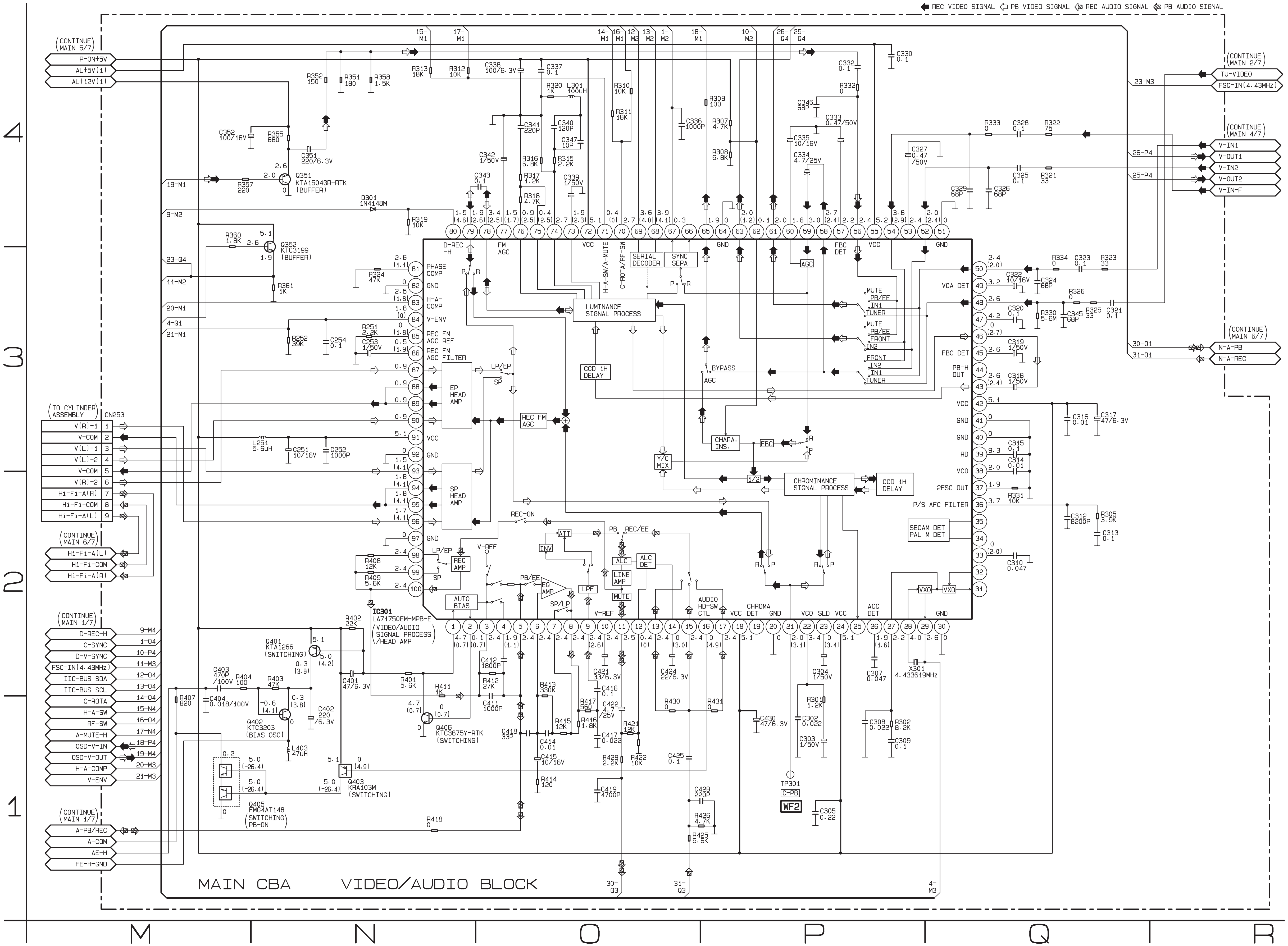
MODEL	MARK
29A-650	A
29A-654	B



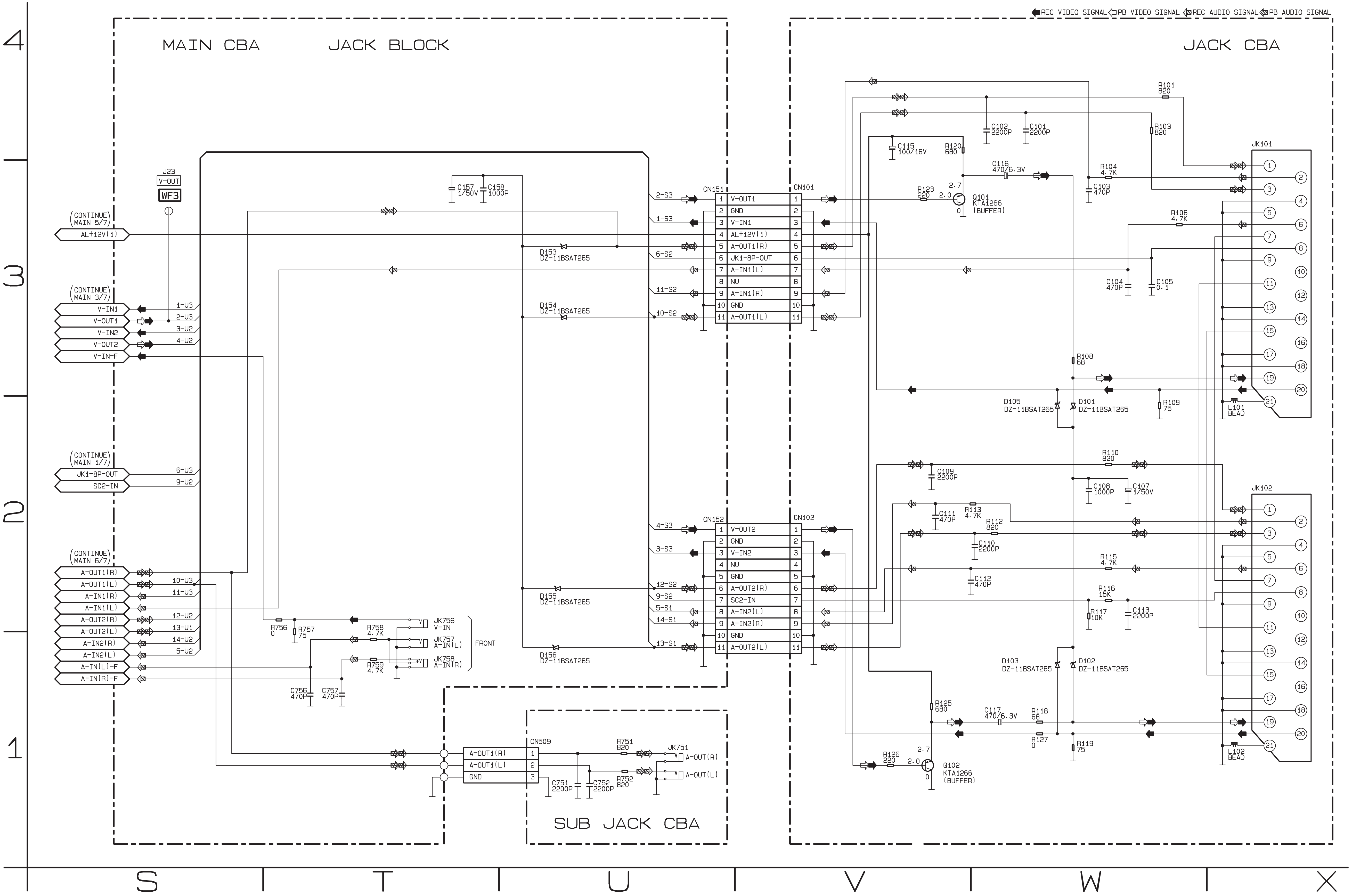
Main 2/7 & Sensor Schematic Diagrams



Main 3/7 Schematic Diagram



Main 4/7 & Jack Schematic Diagrams

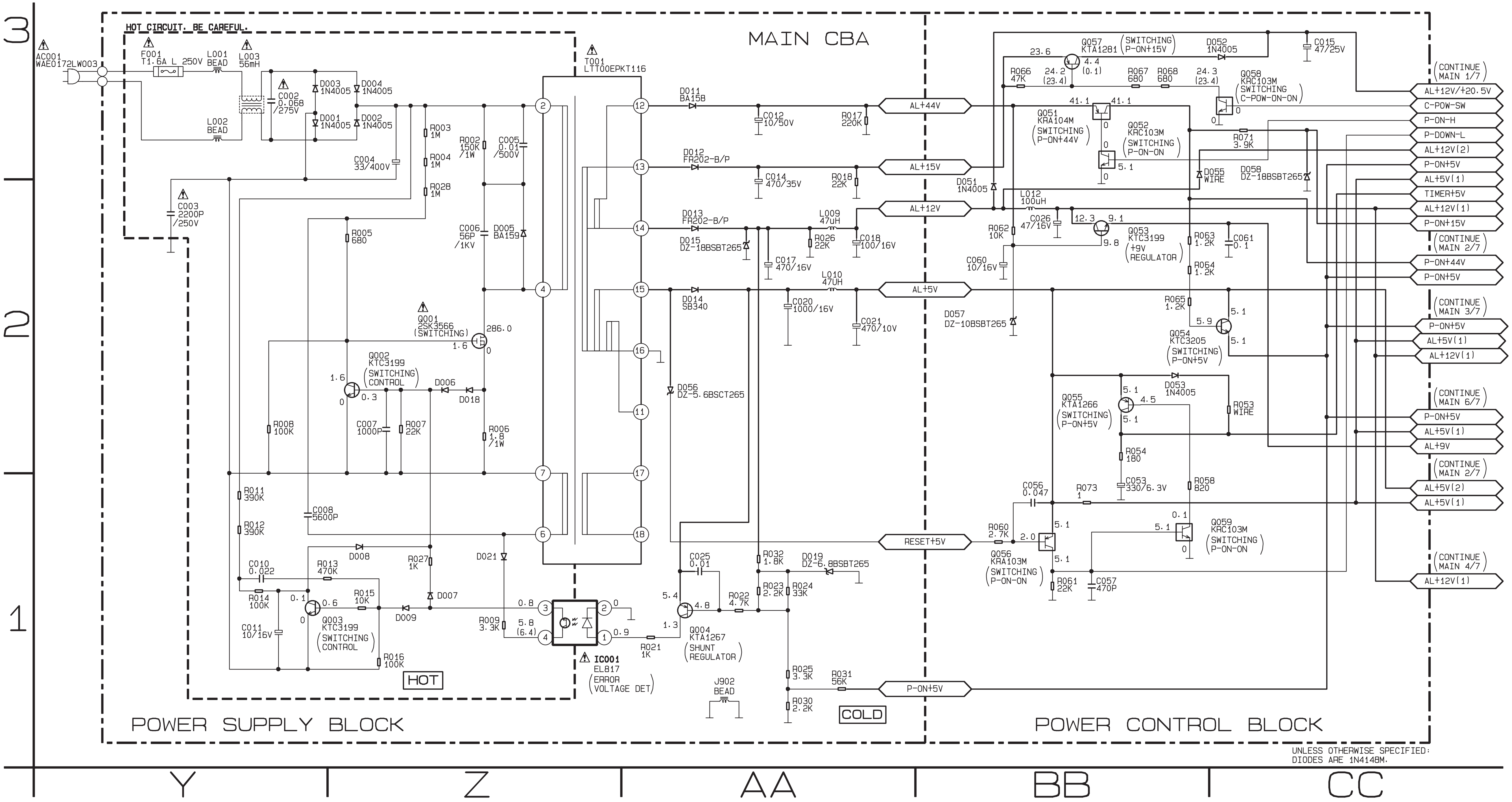


Main 5/7 Schematic Diagram

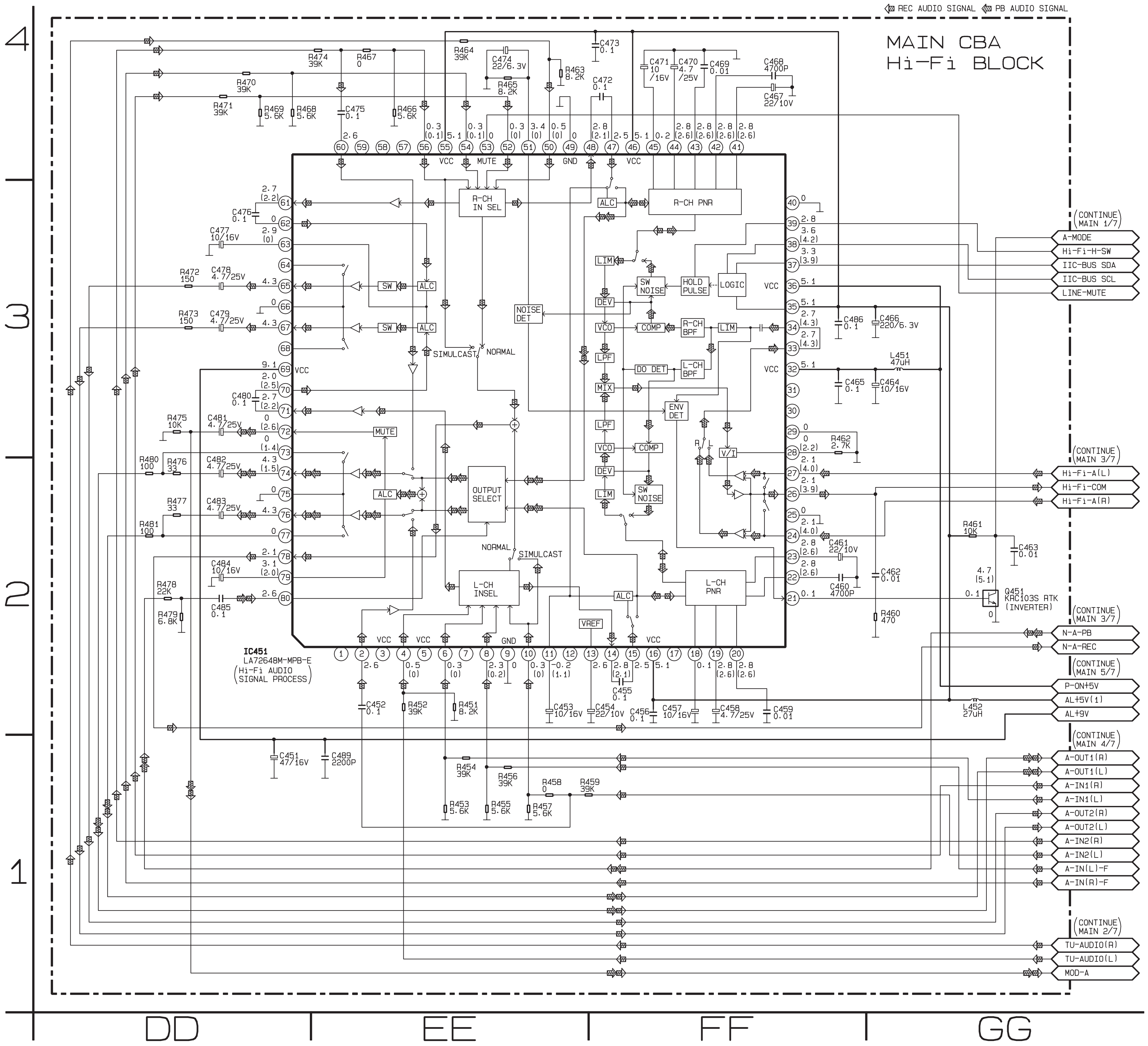
CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.

NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.



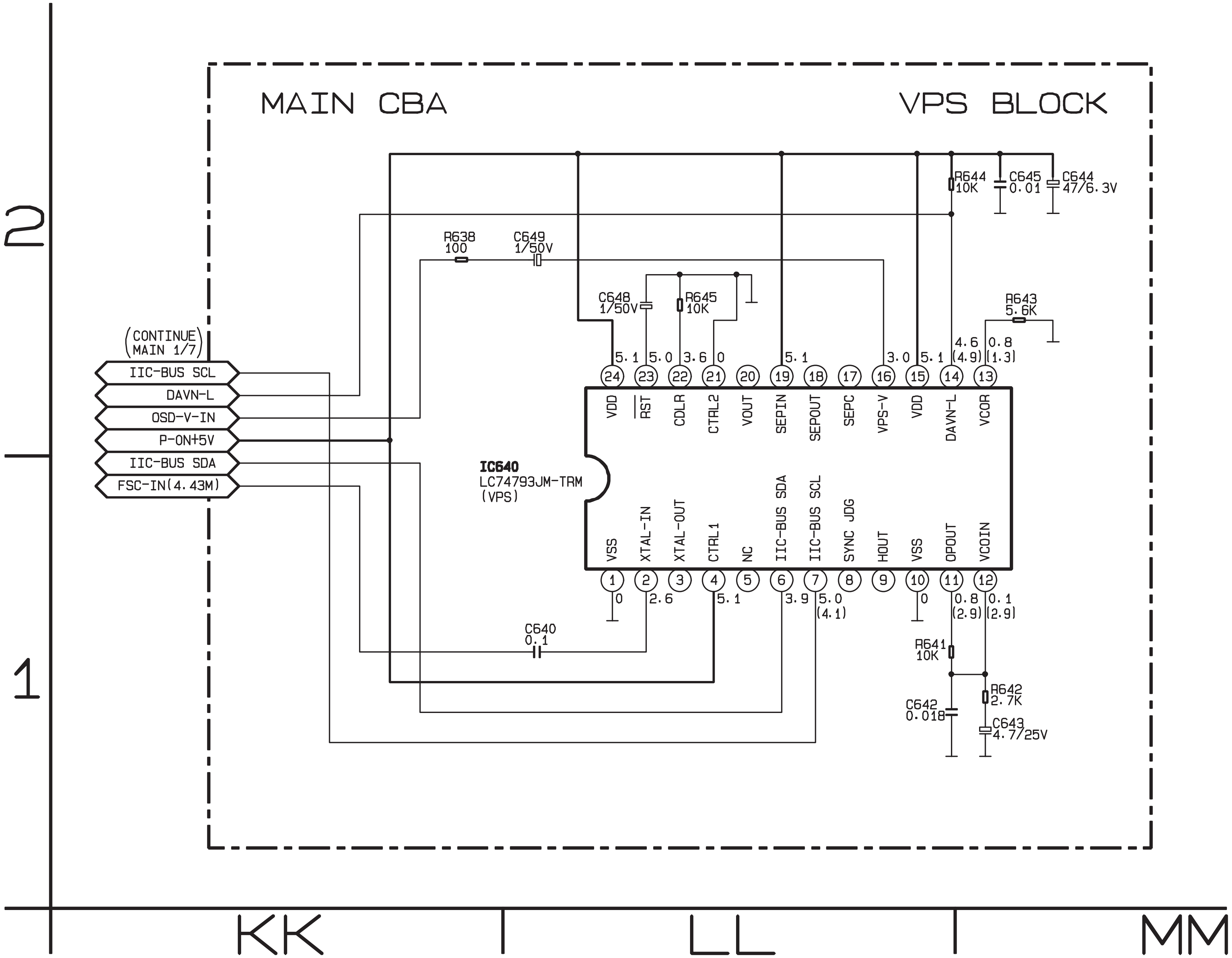
Main 6/7 Schematic Diagram



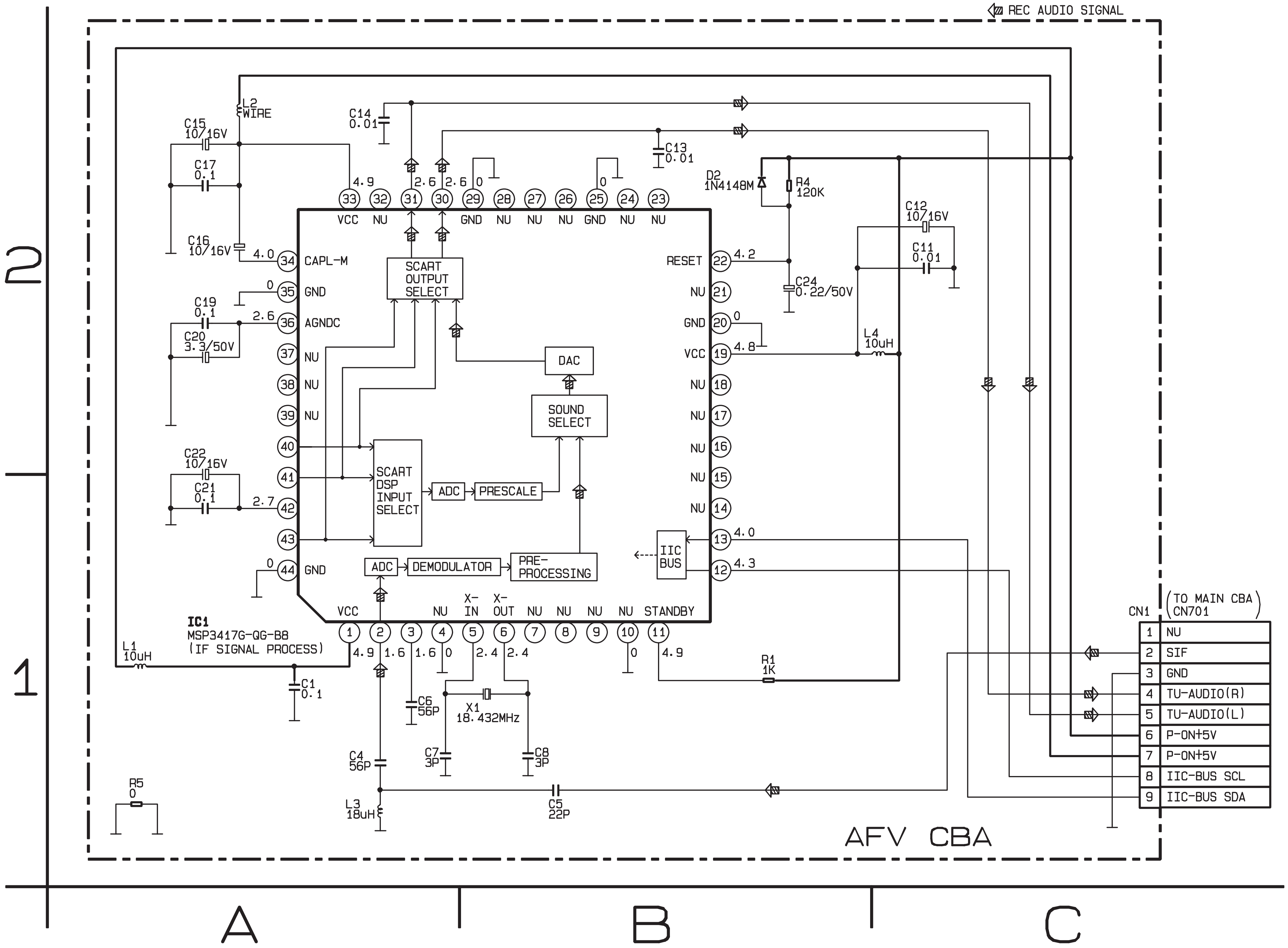
Main 7/7 Schematic Diagram (B)

Comparison Chart of Models and Marks

MODEL	MARK
29A-650	A
29A-654	B



AFV Schematic Diagram



Main CBA Top View

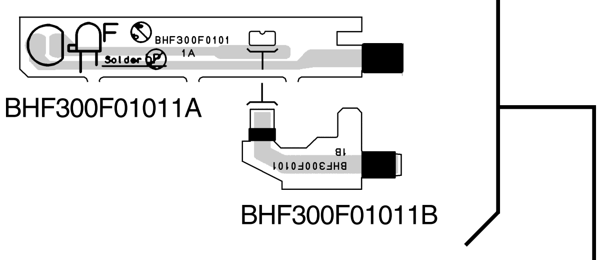
CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.

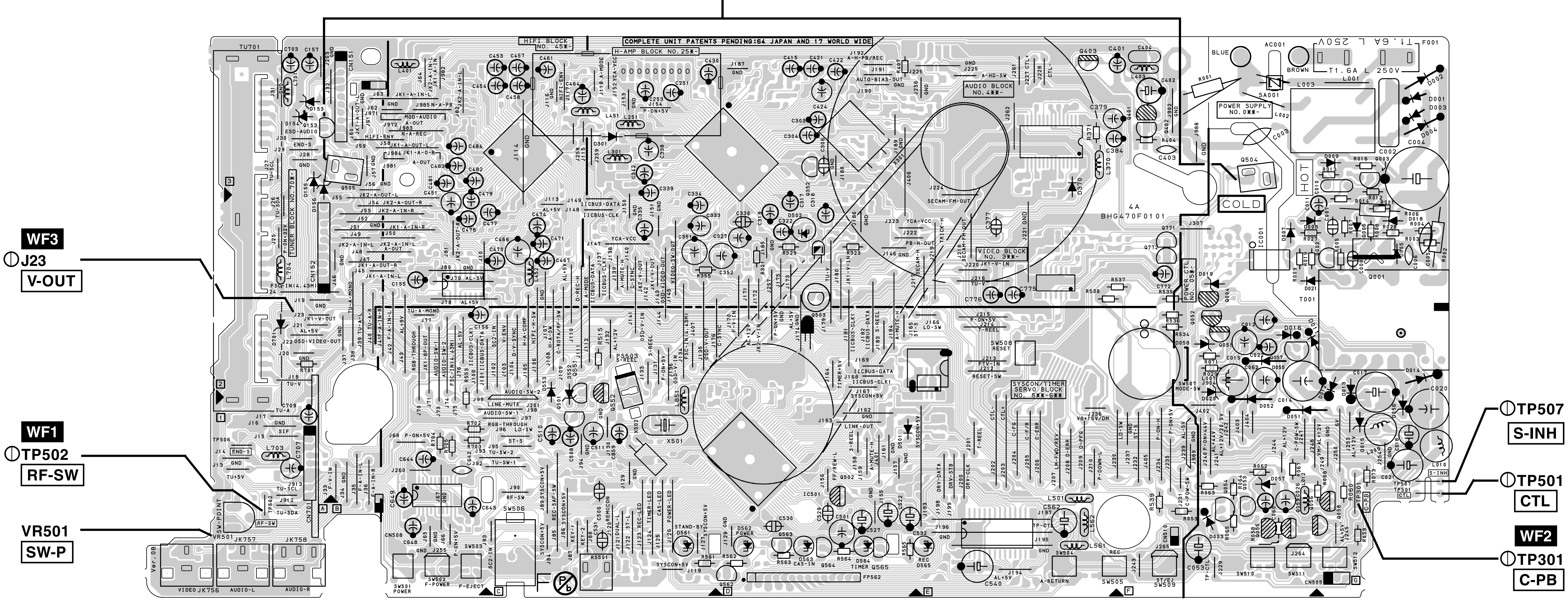
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT , AN ISOLATION TRANSFORMER MUST BE USED. ALSO , IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY , WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT , A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.

Sensor CBA Top View





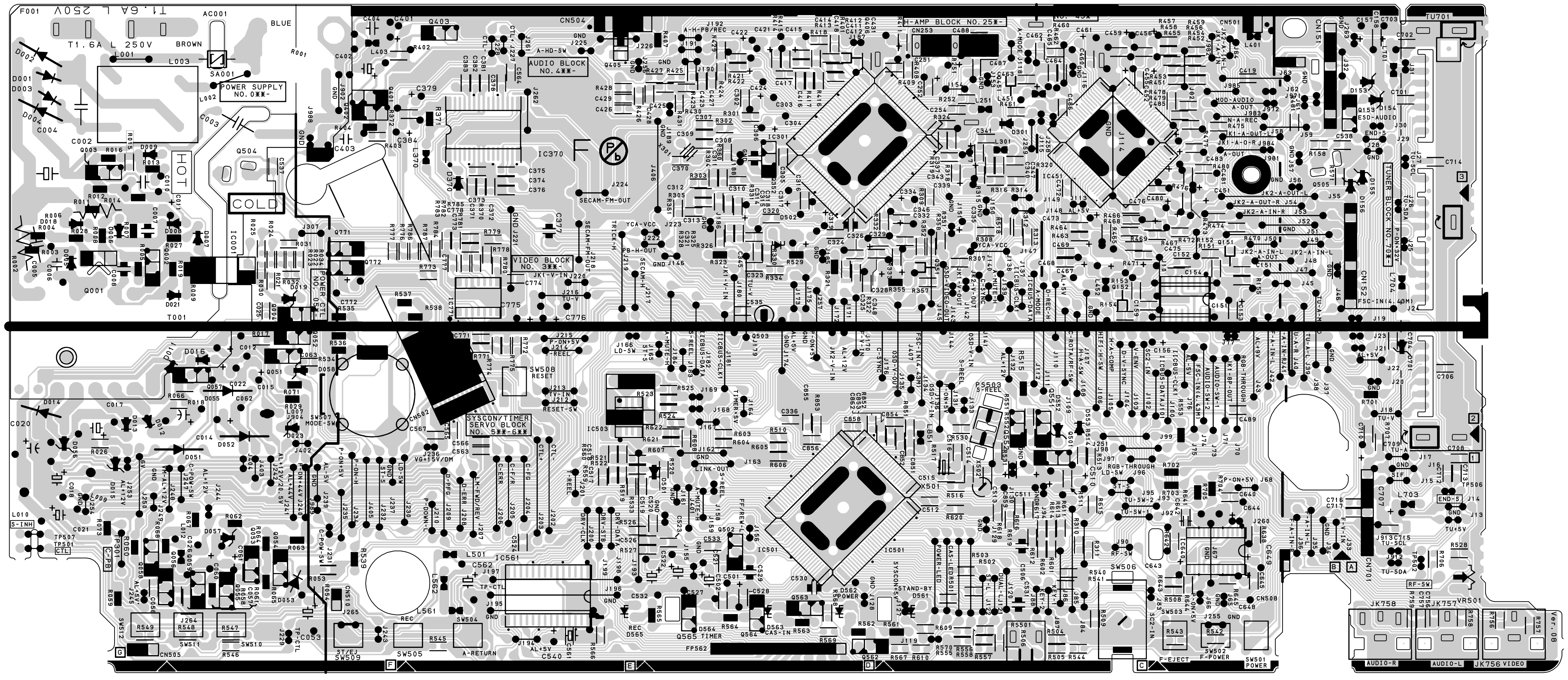
Main CBA Bottom View

CAUTION !
For continued protection against fire hazard, replace only with the same type fuse.

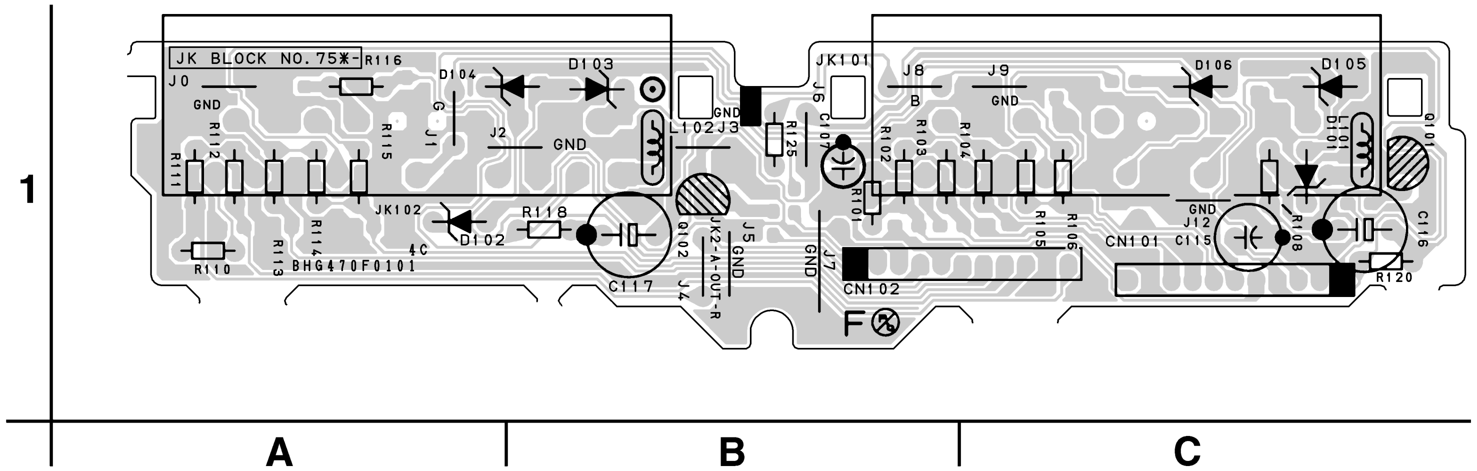
NOTE :
The voltage for parts in hot circuit is measured using hot GND as a common terminal.

CAUTION !
Fixed voltage (or Auto voltage selectable) power supply circuit is used in this unit. If Main Fuse (F001) is blown, check to see that all components in the power supply circuit are not defective before you connect the AC plug to the AC power supply. Otherwise it may cause some components in the power supply circuit to fail.

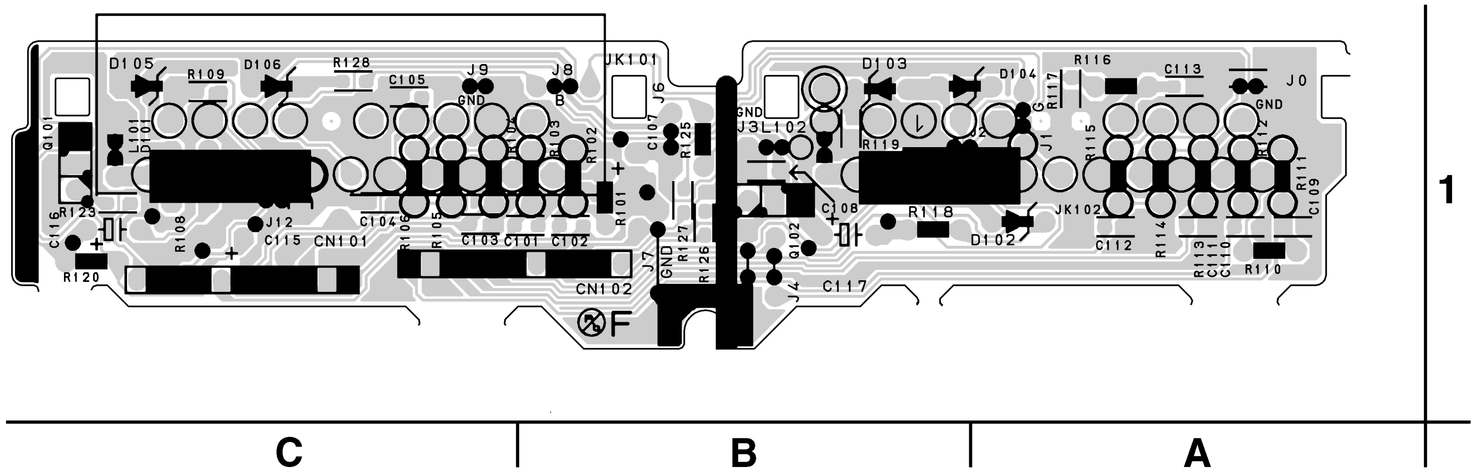
BECAUSE A HOT CHASSIS GROUND IS PRESENT IN THE POWER SUPPLY CIRCUIT , AN ISOLATION TRANSFORMER MUST BE USED. ALSO , IN ORDER TO HAVE THE ABILITY TO INCREASE THE INPUT SLOWLY , WHEN TROUBLESHOOTING THIS TYPE POWER SUPPLY CIRCUIT , A VARIABLE ISOLATION TRANSFORMER IS REQUIRED.



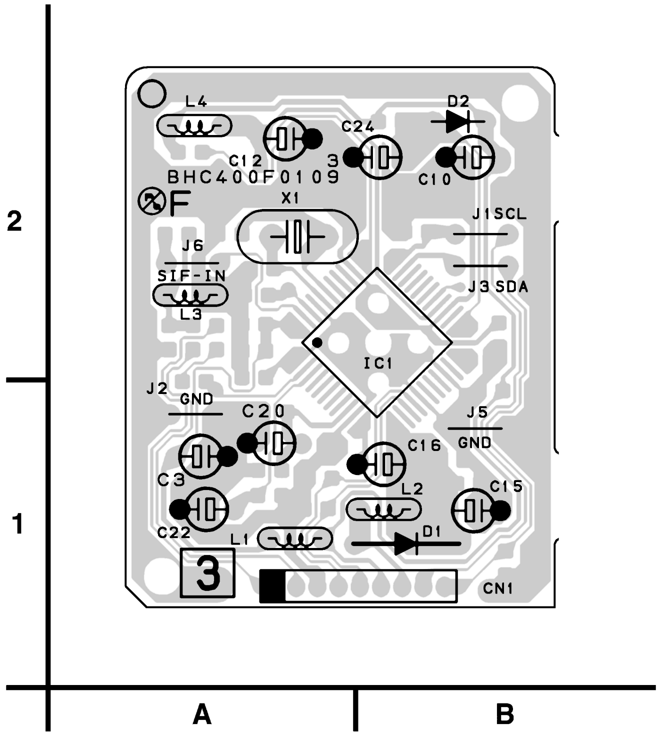
Jack CBA Top View



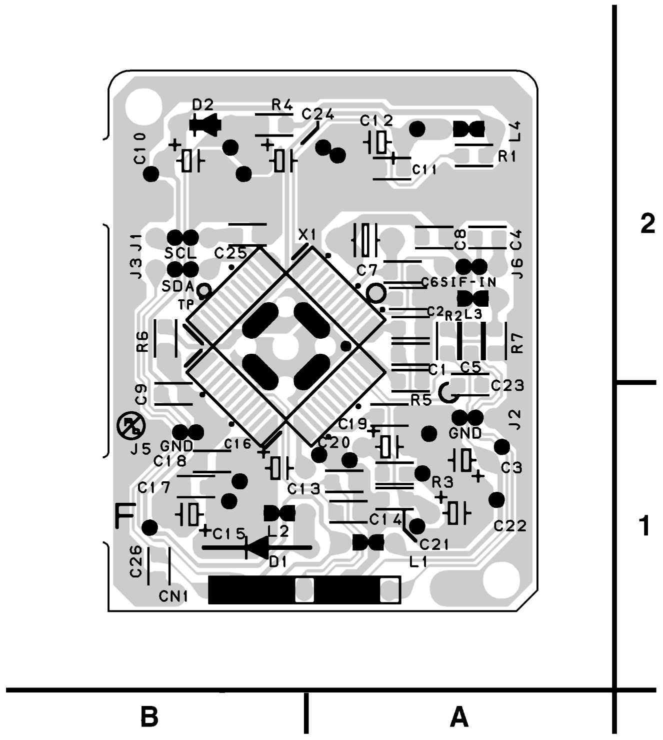
Jack CBA Bottom View



AFV CBA Top View



AFV CBA Bottom View



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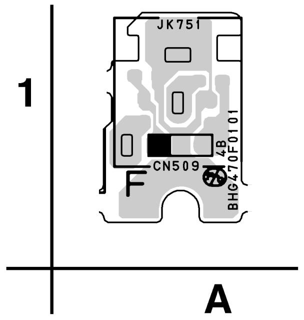
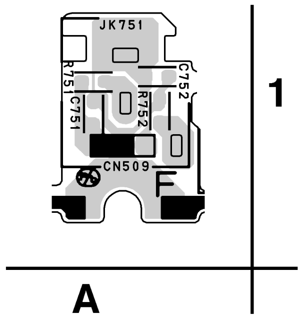
Sub Jack CBA Top View



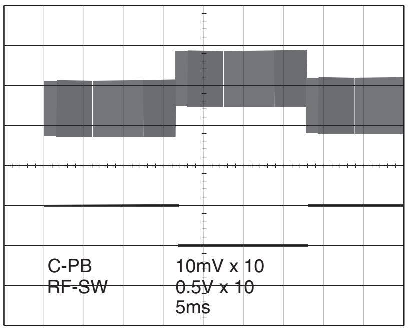
Sub Jack CBA Bottom View



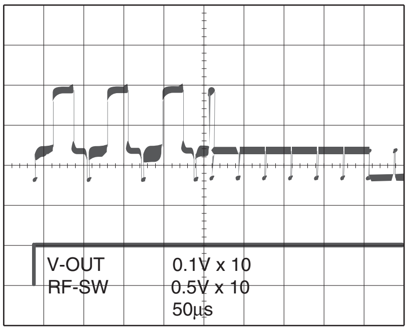
BHG470F01014B

WAVEFORMS

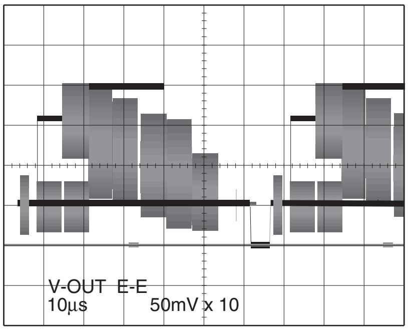
WF2 UPPER TP301
WF1 LOWER TP502



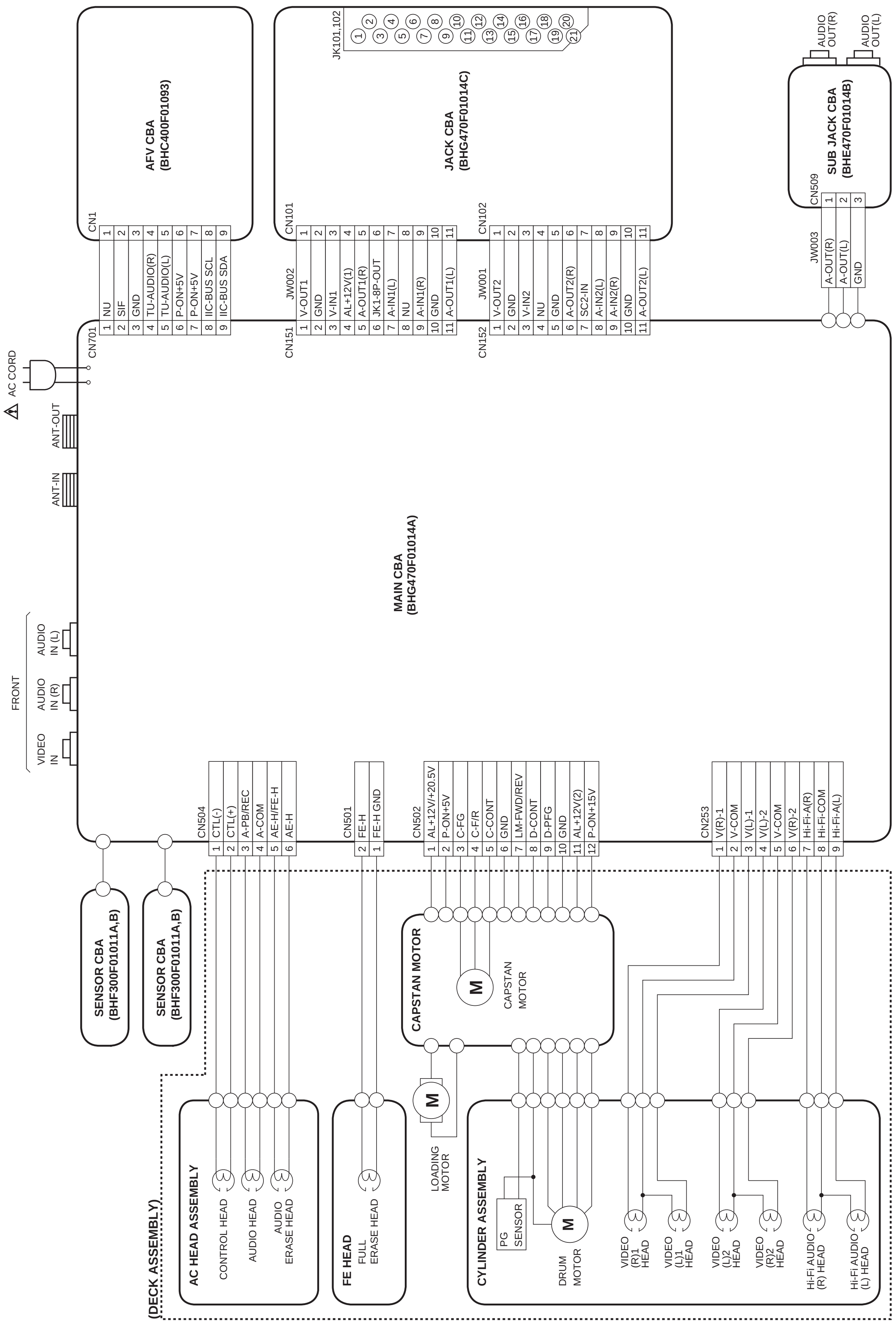
WF3 UPPER J23
WF1 LOWER TP502



WF3 J23



WIRING DIAGRAM



IC PIN FUNCTION DESCRIPTIONS

Comparison Chart of Models and Marks

Model	Mark
29A-650	A
29A-654	B

IC501(SERVO / SYSTEM CONTROL IC)

"H" ≥ 4.5V, "L" ≤ 1.0V

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
1		IN	SC2-IN	Input Signal from Pin 8 of SCART2	A/D
2		IN	PG-DELAY	Video Head Switching Pulse Signal Adjusted Voltage	A/D
3		IN	POW-SAF	P-ON Power Detection Input Signal	A/D
4		IN	END-S	Tape End Position Detect Signal	A/D
5		IN	AFC	Automatic Frequency Control Signal	A/D
6		IN	V-ENV	Video Envelope Comparator Signal	A/D
7		IN	KEY-1	Key Scan Input Signal 1	A/D
8		IN	KEY-2	Key Scan Input Signal 2	A/D
9		IN	LD-SW	Deck Mode Position Detector Signal	A/D
10		IN	ST-S	Tape Start Position Detector Signal	A/D
11		-	N.U.	Not Used	-
12		-	N.U.	Not Used	-
13		OUT	D-V-SYNC	Dummy V-sync Output	H/Hi-z
14		IN	REMOCON-IN	Remote Control Sensor	L
15		OUT	C-ROTA	Color Phase Rotary Changeover SIgnal	H/L
16		OUT	H-A-SW	Video Head Amp Switching Pulse	H/L
17		IN	H-A-COMP	Head Amp Comparator Signal	H/L
18		OUT	RF-SW	Video Head Switching Pulse	H/L
19		OUT	Hi-Fi-H-SW	Hi-Fi Audio Head Switching Pulse	H/L
20		-	N.U.	Not Used	-
21		-	N.U.	Not Used	-
22		-	N.U.	Not Used	-
23		-	N.U.	Not Used	-
24		-	N.U.	Not Used	-
25		-	N.U.	Not Used	-
26		-	N.U.	Not Used	-
27		-	N.U.	Not Used	-
28		OUT	LINE-MUTE	Audio Mute Control Signal	H
29		-	N.U.	Not Used	-
30		-	N.U.	Not Used	-
31		IN	REC-SAF-SW	Recording Safety SW Detect (With Record tab="L"/ With out Record tab="H")	H
32		IN	A-MODE	Hi-Fi Tape Detection Signal	L
33		OUT	D-REC-H	Delayed Record Signal	H
34		IN	RESET	System Reset Signal (Reset="L")	L
35		IN	Xcin	Sub Clock	-
36		OUT	Xcout	Sub Clock	-
37		-	Vcc	Vcc	-
38		IN	Xin	Main Clock Input	-
39		OUT	Xout	Main Clock Input	-
40		-	Vss	Vss(GND)	-
41		-	N.U.	Not Used	-
42		-	N.U.	Not Used	-

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
43		IN	CLKSEL	Clock Select (GND)	-
44		IN	OSCin	Clock Input for letter size	-
45		OUT	OSCout	Clock Output for letter size	-
46		-	N.U.	Not Used	-
47		-	LP	LP	-
48		IN	FSC-IN [4.43MHz]	4.43MHz Clock Input	-
49		-	OSDVss	OSDVss	-
50		IN	OSD-V-IN	OSD Video Signal Input	-
51		-	N.U.	Not Used	-
52		OUT	OSD-V-OUT	OSD Video Signal Output	-
53		-	OSDVcc	OSDVcc	-
54		-	HLF	LPF Connected Terminal (Slicer)	-
55		-	N.U.	Not Used	-
56	A	-	N.U.	Not Used	-
	B	IN	DAVN-L	VPS/PDC Data Receive = “L”	L
57		-	N.U.	Not Used	-
58		IN	C-SYNC	Composite Synchronized Pulse	PULSE
59		OUT	8POUT-1	SCART 1 8Pin Output Control Signal	H/L
60		-	N.U.	Not Used	-
61		-	N.U.	Not Used	-
62		-	N.U.	Not Used	-
63		-	N.U.	Not Used	-
64		-	N.U.	Not Used	-
65		-	N.U.	Not Used	-
66		OUT	C-POW-SW	Capstan Power Switching Signal	H/L
67		IN	P-ON-H	Power On Signal at High	H
68		OUT	DRV-DATA	LED Clock Driver IC Control Data	H/L

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
69		OUT	DRV-STB	LED Clock Driver IC Chip Select Signal	H/L
70		OUT	DRV-CLK	LED Clock Driver IC Control Clock	H/L
71		OUT	IIC-BUS SCL	I^{2}C BUS Control Clock	H/L
72		IN/ OUT	IIC-BUS SDA	I^{2}C BUS Control Data	H/L
73		-	N.U.	Not Used	-
74		-	N.U.	Not Used	-
75		-	N.U.	Not Used	-
76		OUT	C-CONT	Capstan Motor Control Signal	PWM
77		OUT	D-CONT	Drum Motor Control Signal	PWM
78		OUT	C-F/R	Capstan Motor FWD/REV Control Signal (FWD=”L”/ REV=”H”)	H/L
79		IN	S-REEL	Supply Reel Rotation Signal	PULSE
80		IN	T-REEL	Take Up Reel Rotation Signal	PULSE
81		OUT	LM-FWD/ REV	Loading Motor Control Signal	H/L/ Hi-z
82		-	N.U.	Not Used	-
83		OUT	A-MUTE	Audio Mute Control Signal	H
84		-	N.U.	Not Used	-
85		-	N.U.	Not Used	-
86		IN	P-DOWN-L	Power Voltage Down Detector Signal	L
87		IN	C-FG	Capstan Motor Rotation Detection Pulse	PULSE
88		-	N.U.	Not Used	-
89		-	N.U.	Not Used	-
90		IN	D-PFG	Drum Motor Pulse Generator	PULSE
91		-	AMPVREF OUT	V-Ref for CTL AMP	-
92		-	AMPVREFin	V-Ref for CTL AMP	-

Pin No.	Mark	IN/ OUT	Signal Name	Function	Active Level
93		-	P80/C	P80/C Terminal	-
94		IN/ OUT	CTL (-)	Playback/ Record Control Signal (-)	H/L
95		IN/ OUT	CTL (+)	Playback/ Record Control Signal (+)	H/L
96		-	AMPC	CTL AMP Connected Terminal	-
97		-	CTLAMP out	To Monitor for CTL AMP Output	PULSE
98		-	AMPVcc	AMPVcc	-
99		-	AVcc	A/D Converter Power Input/ Standard Voltage Input	-
100		IN	AGC	IF AGC Comparator Signal	A/D

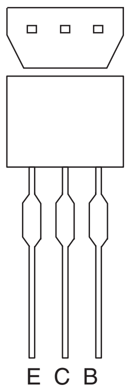
Notes:

Abbreviation for Active Level:

PWM -----Pulse Wide Modulation

A/D--------Analog - Digital Converter

LEAD IDENTIFICATIONS



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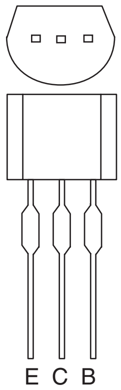
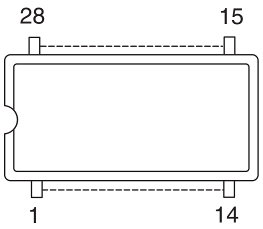
BA1F4M-T
BN1F4M-T
BN1L4M-T
KRA103M
KRA104M
KRC103M
KTA1266(GR)
KTA1281(Y)
KTC3199(BL,GR,Y)



2SA1015-GR(TPE2)
2SA1020(Y)
2SC1815-BL(TPE2)
2SC1815-GR(TPE2)
2SC1815-Y(TPE2)
2SC2120-Y(TPE2)
2SC3266-Y(TPE2)
KTA1267(GR,Y)
KTC3203(Y)
KTC3205(Y)

PT6958-FN-TP



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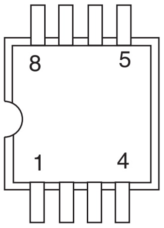
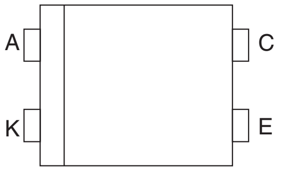
CAT24WC02JI



EL817A
EL817B
EL817C
LTV-817B-F
LTV-817C-F
PS2561A-1(Q,W)



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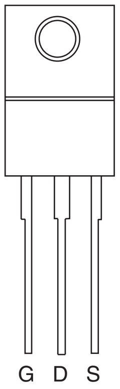

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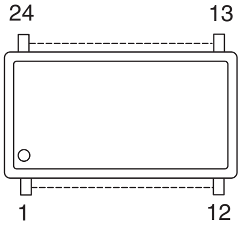

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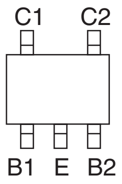
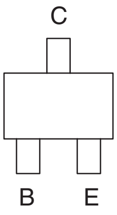
FMG4A T148



FA1F4M-T1B
KRC103S RTK
KTA1504GR-RTK
KTA1504Y-RTK
KTC3875Y-RTK



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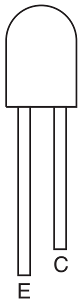

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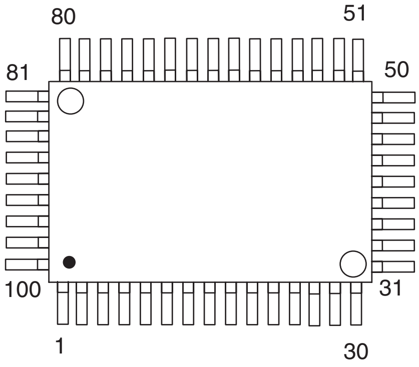

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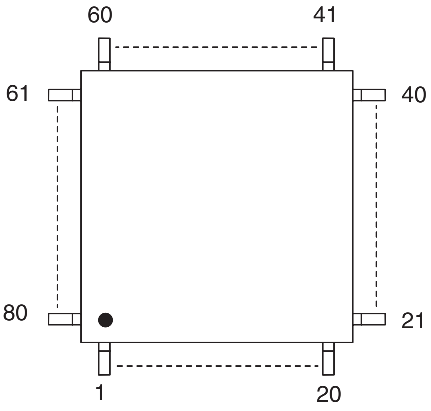
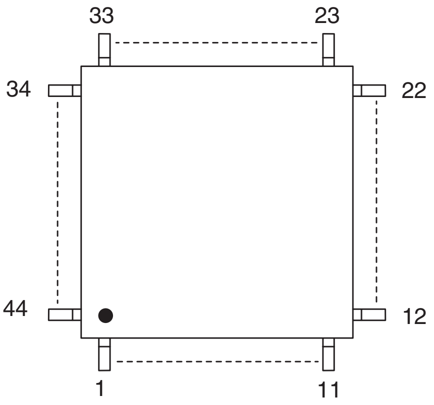


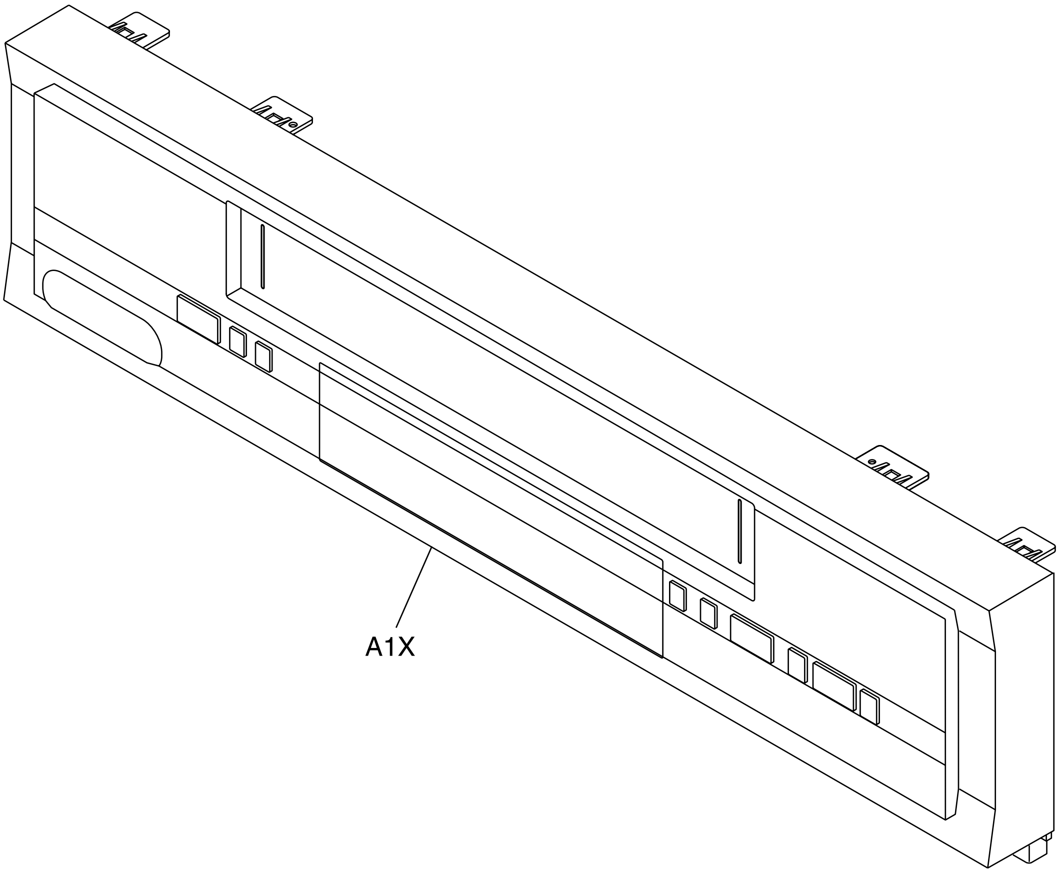
MSP3407G-QG-B8
MSP3407G-QG-B8-V3



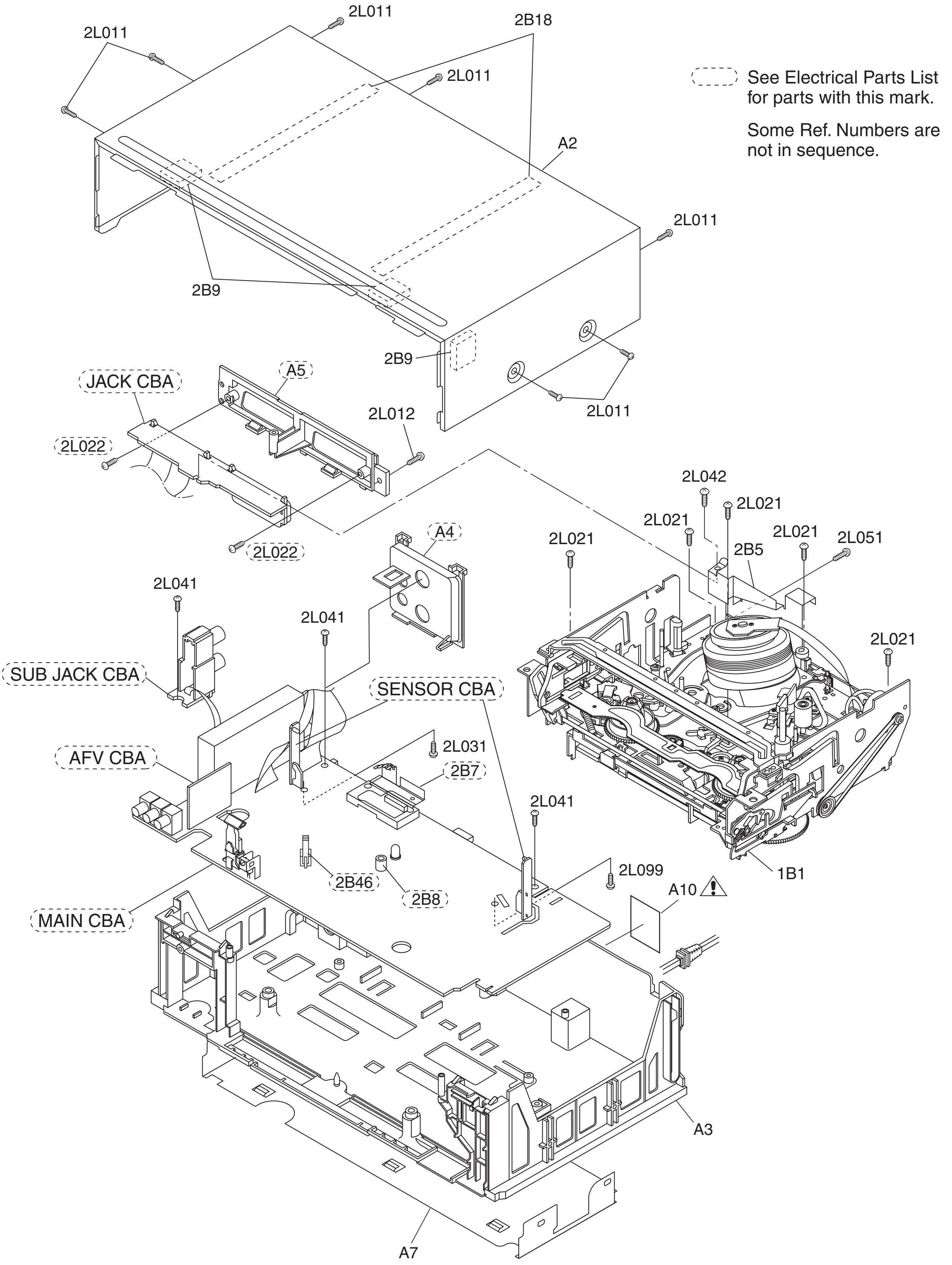
Note:
A: Anode
K: Cathode
E: Emitter
C: Collector
B: Base
R: Reference
S: Source
G: Gate
D: Drain

EXPLODED VIEWS

Front Panel



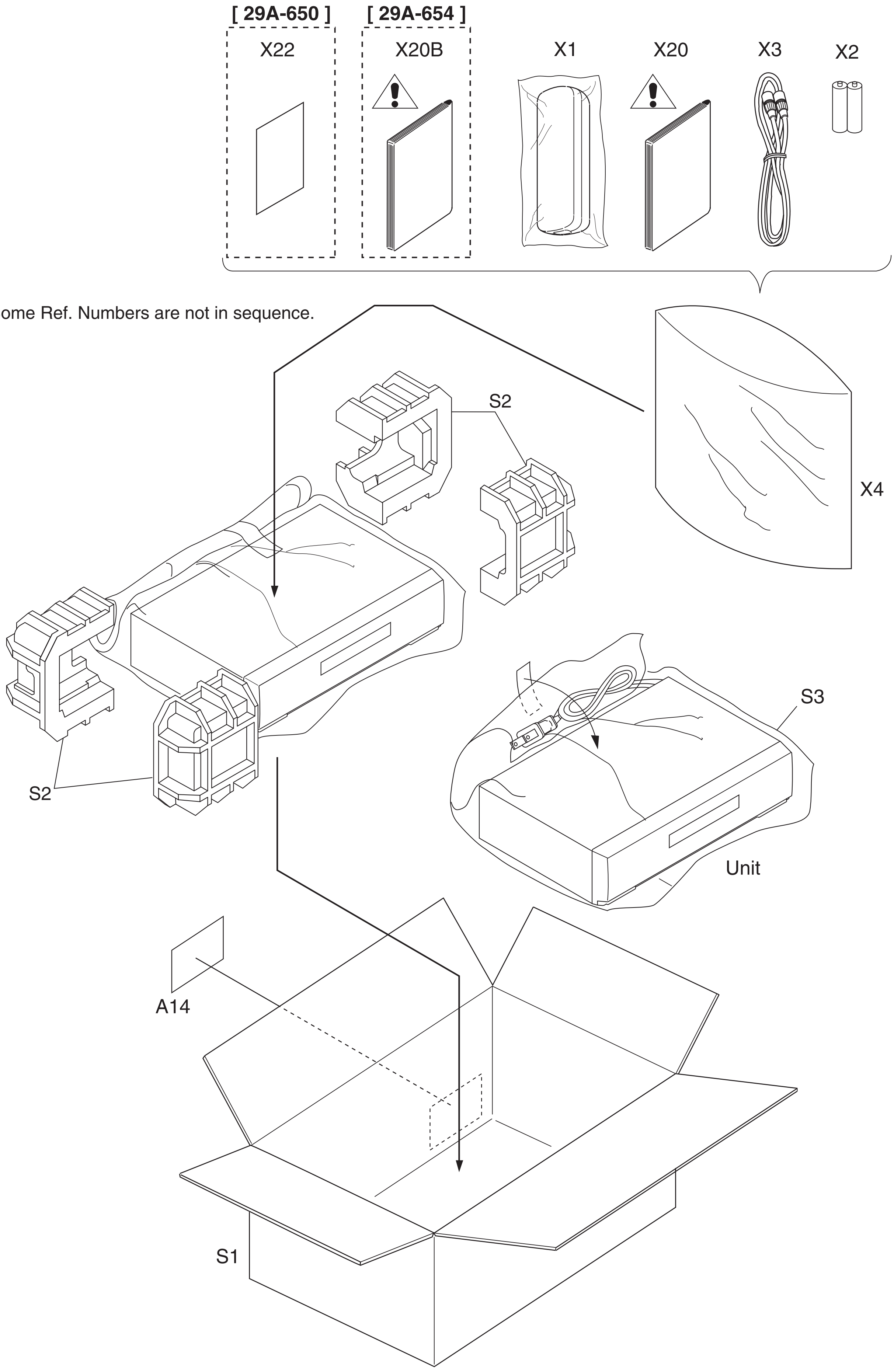
Cabinet



See Electrical Parts List for parts with this mark.

Some Ref. Numbers are not in sequence.

Packing



Some Ref. Numbers are not in sequence.

MECHANICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTE:
Parts that are not assigned part numbers (---------) are not available.

Comparison Chart of Models and Marks

Model	Mark
29A-650	A
29A-654	B

Ref. No.	Mark	Description	Part No.
A1X		FRONT ASSEMBLY HE450ED	0VM204197
A2		CASE, TOP(ANTHRACITE) HE240ED	0VM101267
A3		CHASSIS(U27F-GMBH) HE240ED	0VM000177
A4		JACK BOARD(U27 FTZ) HE480ED (See Electrical Parts List)	
A5		JACK BOARD(2-21P) HE470ED (See Electrical Parts List)	
A7		PANEL, BOTTOM HE470ED	0VM203862
A10⚠	A	LABEL, RATING HG450ED	---------
A10⚠	B	LABEL, RATING HG451ED	---------
A14		LABEL, SERIAL NO. HE240ED	---------
A14	A	LABEL, BAR CODE HG450ED	---------
A14	B	LABEL, BAR CODE HG451ED	---------
1B1		DECK ASSEMBLY CZD013/VM23ED	N23E0FL
2B5		SHEILD, CYLINDER HG470ED	0VM306638
2B7		SHIELD ASSEMBLY HG470ED (See Electrical Parts List)	
2B8		BUSH, LED(F) H3700UD (See Electrical Parts List)	
2B9		CUSHION HC460ED	0VM413251
2B18		FIBER, TOP CASE HC460ED	0VM412906
2B46		ROHM HOLDER H7770JD (See Electrical Parts List)	
2L011		SCREW, P-TIGHT 3X10 BIND HEAD+	GBCP3100
2L012		SCREW, P-TIGHT 3X10 BIND HEAD+	GBCP3100
2L021		SCREW, P-TIGHT M3X10 WASHER HEAD+	GCMP3100
2L022		SCREW, P-TIGHT M3X10 WASHER HEAD+ (See Electrical Parts List)	
2L031		SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
2L041		P-TIGHT SCREW 3X8 BIND +	GBMP3080
2L042		P-TIGHT SCREW 3X8 BIND +	GBMP3080
2L051		SCREW, S-TIGHT M3X5 BIND HEAD+	GBMS3050
2L099		SCREW, P-TIGHT M3X8 BIND HEAD+	GBCP3080
		PACKING	
S1	A	GIFT BOX CARTON HG450ED	0VM306969
S1	B	GIFT BOX CARTON HG451ED	0VM306970
S2		STYROFOAM HG470ED	0VM204516
S3		UNIT, BAG V4010PA	0VM406453B
		ACCESSORIES	
X1		REMOTE CONTROL UNIT 364/CZF29UU	NA690ED
X2		DRY BATTERY R6P/2S or	XB0M451T0001
		DRY BATTERY ES-GR6M-C	XB0M571GLP01
X3		RF CORD PAL 1.2M or	WPZ0122LG001
		RF CABLE CC1001020012010	WPZ0122LW001
X4		ACCESSORY BAG K8092BA	0VM404632
X20⚠	A	OWNER'S MANUAL(ITALIAN) HG450ED	0VMN04187
X20⚠	B	OWNER'S MANUAL(GREEK) HG451ED	0VMN04065
X20B⚠	B	OWNER'S MANUAL(ENGLISH) HG451ED	1VMN20023
X22	A	SERVICE CENTER LIST HC2C0ED	0VMN03071A

ELECTRICAL PARTS LIST

PRODUCT SAFETY NOTE: Products marked with a ⚠ have special characteristics important to safety. Before replacing any of these components, read carefully the product safety notice in this service manual. Don't degrade the safety of the product through improper servicing.

NOTES:

1. Parts that are not assigned part numbers (---------) are not available.
2. Tolerance of Capacitors and Resistors are noted with the following symbols.

C.....±0.25%	D.....±0.5%	F.....±1%
G.....±2%	J......±5%	K.....±10%
M.....±20%	N.....±30%	Z.....+80/-20%

Comparison Chart of Models and Marks

Model	Mark
29A-650	A
29A-654	B

MCV CBA

Ref. No.	Mark	Description	Part No.
	A B	MCV CBA MCV CBA Consists of the following	0VSA15225 0VSA15256
		MAIN CBA (MCV-A) SUB JACK CBA (MCV-B) JACK CBA (MCV-C) SENSOR CBA	----------- ----------- ----------- 0VSA14893

MAIN CBA

Ref. No.	Mark	Description	Part No.
		MAIN CBA (MCV-A) Consists of the following	-----------
		CAPACITORS	
C002⚠		METALLIZED FILM CAP. 0.068µF/275V K or	CT2E683HJE06
⚠		METALLIZED FILM CAP. 0.068µF/250V K	CT2E683DC011
C003⚠		SAFTY CAP. 2200pF/250V or	CCN2EMA0E222
⚠		SAFETY CAP. 2200pF/250V	CA2E222MR049
C004		ELECTROLYTIC CAP. 33µF/400V M(L.Z)	CA2H330NC010
C005		CERAMIC CAP. B K 0.01µF/500V	CCD2JKP0B103
C006		CERAMIC CAP. SL K 56pF/1KV or	CCD3AKPSL560
		CERAMIC CAP. SL J 56pF/1KV	CCD3AJPSL560
C007		CERAMIC CAP.(AX) B K 1000pF/50V	CCA1JKT0B102
C008		CERAMIC CAP.(AX) X K 5600pF/16V	CCA1CKT0X562
C010		FILM CAP.(P) 0.022µF/50V J or	CMA1JJS00223
		FILM CAP.(P) 0.022µF/50V J	CA1J223MS029
C011		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C012		ELECTROLYTIC CAP. 10µF/50V M H7	CE1JMAVSL100
C014		ELECTROLYTIC CAP. 470µF/35V M or	CE1GMASDL471
		ELECTROLYTIC CAP. 470µF/35V M	CE1GMASTL471
C015		ELECTROLYTIC CAP. 47µF/25V M H7	CE1EMAVSL470
C017		ELECTROLYTIC CAP. 470µF/16V M or	CE1CMASDL471
		ELECTROLYTIC CAP. 470µF/16V M	CE1CMASTL471
C018		ELECTROLYTIC CAP. 100µF/16V M or	CE1CMASDL101
		ELECTROLYTIC CAP. 100µF/16V M	CE1CMASTL101
C020		ELECTROLYTIC CAP. 1000µF/16V M	CE1CMZPTL102
C021		ELECTROLYTIC CAP. 470µF/10V M or	CE1AMASDL471
		ELECTROLYTIC CAP. 470µF/10V M	CE1AMASTL471
C025		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C026		ELECTROLYTIC CAP. 47µF/16V M H7	CE1CMAVSL470
C053		ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASSL221
C056		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 50V or	CHD1JK30B473
		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 25V	CHD1EK30B473
C057		CHIP CERAMIC CAP.(1608) CH J 470pF/50V or	CHD1JJ3CH471
		CHIP CERAMIC CAP. CG J 470pF/50V	CHD1JJ3CG471
C060		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C061		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C157		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C158		CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JK30B102
C251		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C252		CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JK30B102
C253		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C254		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C302		CHIP CERAMIC CAP.(1608) B K 0.022µF/ 50V or	CHD1JK30B223
		CHIP CERAMIC CAP.(1608) B K 0.022µF/ 25V	CHD1EK30B223
C303		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C304		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C305		CHIP CERAMIC CAP. F Z 0.22µF/16V or	CHD1CZ30F224
		CHIP CERAMIC CAP. FZ Z 0.22µF/25V	CHD1EZ3FZ224
C307		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 50V or	CHD1JK30B473
		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 25V	CHD1EK30B473
C308		CHIP CERAMIC CAP.(1608) B K 0.022µF/ 50V or	CHD1JK30B223
		CHIP CERAMIC CAP.(1608) B K 0.022µF/ 25V	CHD1EK30B223
C309		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C310		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 50V or	CHD1JK30B473
		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 25V	CHD1EK30B473
C312		CHIP CERAMIC CAP. B K 8200pF/50V	CHD1JK30B822
C313		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C314		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103

Ref. No.	Mark	Description	Part No.
C315		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C316		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C317		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C318		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C319		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C320		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C321		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C322		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C323		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C324		CHIP CERAMIC CAP. CH J 68pF/50V or	CHD1JJ3CH680
		CHIP CERAMIC CAP. CG J 68pF/50V	CHD1JJ3CG680
C325		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C326		CHIP CERAMIC CAP. CH J 68pF/50V or	CHD1JJ3CH680
		CHIP CERAMIC CAP. CG J 68pF/50V	CHD1JJ3CG680
C327		ELECTROLYTIC CAP. 0.47µF/50V M H7	CE1JMAVSLR47
C328		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C329		CHIP CERAMIC CAP. CH J 68pF/50V or	CHD1JJ3CH680
		CHIP CERAMIC CAP. CG J 68pF/50V	CHD1JJ3CG680
C330		CERAMIC CAP.(AX) F Z 0.1µF/50V	CCA1JZTFZ104
C332		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C333		ELECTROLYTIC CAP. 0.47µF/50V M H7	CE1JMAVSLR47
C334		ELECTROLYTIC CAP. 4.7µF/25V M NP H7	CP1EMAVSB4R7
C335		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C336		CHIP CERAMIC CAP.(1608) CH J 1000pF/50V or	CHD1JJ3CH102
		CHIP CERAMIC CAP. CH J 1000pF/25V or	CHD1EJ3CH102
		CHIP CERAMIC CAP. CG J 1000pF/50V	CHD1JJ3CG102
C337		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C338		ELECTROLYTIC CAP. 100µF/6.3V H7	CE0KMAVSL101
C339		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C340		CHIP CERAMIC CAP. CH J 120pF/50V or	CHD1JJ3CH121
		CHIP CERAMIC CAP. CG J 120pF/50V	CHD1JJ3CG121
C341		CHIP CERAMIC CAP. CH J 220pF/50V or	CHD1JJ3CH221
		CHIP CERAMIC CAP. CG J 220pF/50V	CHD1JJ3CG221
C342		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C343		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C345		CHIP CERAMIC CAP. CH J 68pF/50V or	CHD1JJ3CH680
		CHIP CERAMIC CAP. CG J 68pF/50V	CHD1JJ3CG680
C346		CHIP CERAMIC CAP. CH J 68pF/50V or	CHD1JJ3CH680
		CHIP CERAMIC CAP. CG J 68pF/50V	CHD1JJ3CG680
C347		CHIP CERAMIC CAP. CH D 10pF/50V or	CHD1JD3CH100
		CHIP CERAMIC CAP. CG D 10pF/50V	CHD1JD3CG100
C351		ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMAVSL221
C352		ELECTROLYTIC CAP. 100µF/16V M H7	CE1CMAVSL101
C401		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C402		ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMASSL221
C403		CERAMIC CAP. B K 470pF/100V	CCD2AKS0B471
C404		FILM CAP.(P) 0.018µF/100V J or	CMA2AJP00183
		FILM CAP.(P) 0.018µF/50V J	CMA1JJP00183
C411		CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JK30B102
C412		CHIP CERAMIC CAP. B K 1800pF/50V	CHD1JK30B182
C414		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C415		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C416		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C417		CHIP CERAMIC CAP.(1608) B K 0.022µF/50V or	CHD1JK30B223
		CHIP CERAMIC CAP.(1608) B K 0.022µF/25V	CHD1EK30B223
C418		CHIP CERAMIC CAP.(1608) CH J 33pF/50V or	CHD1JJ3CH330
		CHIP CERAMIC CAP. CG J 33pF/50V	CHD1JJ3CG330
C419		CHIP CERAMIC CAP.(1608) B K 4700pF/50V	CHD1JK30B472
C421		ELECTROLYTIC CAP. 33µF/6.3V M H7	CE0KMAVSL330
C422		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7
C424		ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMAVSL220
C425		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C428		CHIP CERAMIC CAP. CH J 220pF/50V or	CHD1JJ3CH221
		CHIP CERAMIC CAP. CG J 220pF/50V	CHD1JJ3CG221
C430		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C451		ELECTROLYTIC CAP. 47µF/16V M H7	CE1CMAVSL470
C452		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C453		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C454		ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMAVSL220
C455		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C456		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C457		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C458		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7

Ref. No.	Mark	Description	Part No.
C459		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C460		CHIP CERAMIC CAP.(1608) B K 4700pF/50V	CHD1JK30B472
C461		ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMAVSL220
C462		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C463		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C464		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C465		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C466		ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMAVSL221
C467		ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMAVSL220
C468		CHIP CERAMIC CAP.(1608) B K 4700pF/50V	CHD1JK30B472
C469		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C470		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7
C471		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C472		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C473		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C474		ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMAVSL220
C475		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C476		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C477		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C478		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7
C479		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7
C480		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C481		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7
C482		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7
C483		ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7
C484		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMAVSL100
C485		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C486		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C489		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C501		ELECTROLYTIC CAP. 220µF/6.3V M H7	CE0KMAVSL221
C502		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104

Ref. No.	Mark	Description	Part No.
C506		CERAMIC CAP.(AX) B K 100pF/50V	CCA1JKT0B101
C508		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C510		ELECTROLYTIC CAP. 22µF/10V M H7	CE1AMAVSL220
C511		ELECTROLYTIC CAP. 100µF/6.3V H7	CE0KMAVSL101
C512		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C513		CHIP CERAMIC CAP.(1608) CH J 22pF/50V or	CHD1JJ3CH220
		CHIP CERAMIC CAP. CG J 22pF/50V	CHD1JJ3CG220
C514		CHIP CERAMIC CAP.(1608) CH J 22pF/50V or	CHD1JJ3CH220
		CHIP CERAMIC CAP. CG J 22pF/50V	CHD1JJ3CG220
C515		CHIP CERAMIC CAP. CH J 18pF/50V or	CHD1JJ3CH180
		CHIP CERAMIC CAP. CG J 18pF/50V	CHD1JJ3CG180
C516		CHIP CERAMIC CAP. CH J 18pF/50V or	CHD1JJ3CH180
		CHIP CERAMIC CAP. CG J 18pF/50V	CHD1JJ3CG180
C517		CHIP CERAMIC CAP.(1608) B K 4700pF/50V	CHD1JK30B472
C518		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 50V or	CHD1JK30B473
		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 25V	CHD1EK30B473
C519		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C520		CHIP CERAMIC CAP.(1608) CH J 100pF/50V or	CHD1JJ3CH101
		CHIP CERAMIC CAP. CG J 100pF/50V	CHD1JJ3CG101
C521		CHIP CERAMIC CAP. CH J 560pF/50V or	CHD1JJ3CH561
		CHIP CERAMIC CAP. CG J 560pF/50V	CHD1JJ3CG561
C522		ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C523		CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JK30B102
C524		CHIP CERAMIC CAP. CH J 330pF/50V or	CHD1JJ3CH331
		CHIP CERAMIC CAP. CG J 330pF/50V	CHD1JJ3CG331
C526		CHIP CERAMIC CAP.(1608) B K 4700pF/50V	CHD1JK30B472
C527		ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C528		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C530		CERAMIC CAP.(AX) F Z 0.022µF/25V	CCA1EZTFZ223
C531		CERAMIC CAP.(AX) Y M 0.01µF/16V	CCA1CMT0Y103
C532		ELECTROLYTIC CAP. 22µF/6.3V M H7	CE0KMASSL220
C533		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C535		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C538		CHIP CERAMIC CAP.(1608) B K 0.022µF/ 50V or	CHD1JK30B223
		CHIP CERAMIC CAP.(1608) B K 0.022µF/ 25V	CHD1EK30B223
C540		ELECTROLYTIC CAP. 470µF/6.3V M or	CE0KMASDL471
		ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASTL471
C561		CHIP CERAMIC CAP.(1608) B K 0.022µF/ 50V or	CHD1JK30B223
		CHIP CERAMIC CAP.(1608) B K 0.022µF/ 25V	CHD1EK30B223
C562		ELECTROLYTIC CAP. 330µF/6.3V M H7	CE0KMASSL331
C563		CHIP CERAMIC CAP. F Z 1µF/10V or	CHD1AZB0F105
		CHIP CERAMIC CAP. F Z 1µF/10V	CHD1AZ30F105
C564		CHIP CERAMIC CAP.(1608) CH J 100pF/50V or	CHD1JJ3CH101
		CHIP CERAMIC CAP. CG J 100pF/50V	CHD1JJ3CG101
C567		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104

Ref. No.	Mark	Description	Part No.
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C640	B	CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
	B	CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
	B	CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C642	B	SEMICONDUCTOR CAP. SR K 0.018µF/25V	CDA1EKS0X183
C643	B	ELECTROLYTIC CAP. 4.7µF/25V M H7	CE1EMAVSL4R7
C644	B	ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C645	B	CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C648	B	ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C649	B	ELECTROLYTIC CAP. 1µF/50V M H7 NP	CP1JMAVSB1R0
C701		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 50V or	CHD1JK30B473
		CHIP CERAMIC CAP.(1608) B K 0.047µF/ 25V	CHD1EK30B473
C702		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C704		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C706		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C708		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C716		CHIP CERAMIC CAP. F Z 0.22µF/16V or	CHD1CZ30F224
		CHIP CERAMIC CAP. FZ Z 0.22µF/25V	CHD1EZ3FZ224
C717		CHIP CERAMIC CAP. F Z 0.22µF/16V or	CHD1CZ30F224
		CHIP CERAMIC CAP. FZ Z 0.22µF/25V	CHD1EZ3FZ224
C756		CHIP CERAMIC CAP.(1608) CH J 470pF/50V or	CHD1JJ3CH471
		CHIP CERAMIC CAP. CG J 470pF/50V	CHD1JJ3CG471
C757		CHIP CERAMIC CAP.(1608) CH J 470pF/50V or	CHD1JJ3CH471
		CHIP CERAMIC CAP. CG J 470pF/50V	CHD1JJ3CG471
C851		CHIP CERAMIC CAP.(1608) CH J 22pF/50V or	CHD1JJ3CH220
		CHIP CERAMIC CAP. CG J 22pF/50V	CHD1JJ3CG220
C852		CHIP CERAMIC CAP.(1608) CH J 22pF/50V or	CHD1JJ3CH220
		CHIP CERAMIC CAP. CG J 22pF/50V	CHD1JJ3CG220
C853		CHIP CERAMIC CAP.(1608) B K 4700pF/50V	CHD1JK30B472
C854		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C855		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C856		CHIP CERAMIC CAP. CH J 180pF/50V or	CHD1JJ3CH181
		CHIP CERAMIC CAP. CG J 180pF/50V	CHD1JJ3CG181
C859		ELECTROLYTIC CAP. 47µF/6.3V M H7	CE0KMAVSL470
C862		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
CONNECTOR			
CN701		AFV PCB ASSEMBLY CPU2900/G470	HG470AFV
DIODES			
D001		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	NDWZ001N4005
D002		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	NDWZ001N4005
D003		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	NDWZ001N4005
D004		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	NDWZ001N4005

Ref. No.	Mark	Description	Part No.
D005		RECTIFIER DIODE BA159	NDQZ000BA159
D006		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D007		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D008		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D009		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D011		RECTIFIER DIODE BA158	NDQZ000BA158
D012		RECTIFIER DIODE FR202-B/P	NDQZ000FR202
D013		RECTIFIER DIODE FR202-B/P	NDQZ000FR202
D014		SCHOTTKY BARRIER DIODE SB340 or	NDQZ000SB340
		SCHOTTKY BARRIER DIODE ERB81-004	AERB81004***
D015		ZENER DIODE DZ-18BSBT265 or	NDTB00DZ18BS
		ZENER DIODE MTZJT-7718B	QDTB00MTZJ18
D018		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D019		ZENER DIODE DZ-6.8BSBT265 or	NDTB0DZ6R8BS
		ZENER DIODE MTZJT-776.8B	QDTB0MTZJ6R8
D021		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D051		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	NDWZ001N4005
D052		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	NDWZ001N4005
D053		RECTIFIER DIODE 1N4005 or	NDQZ001N4005
		RECTIFIER DIODE 1N4005	NDWZ001N4005
D055		PCB JUMPER D0.6-P10.0	JW10.0T
D056		ZENER DIODE DZ-5.6BSCT265 or	NDTC0DZ5R6BS
		ZENER DIODE MTZJT-775.6C	QDTC0MTZJ5R6
D057		ZENER DIODE DZ-10BSBT265 or	NDTB00DZ10BS
		ZENER DIODE MTZJT-7710B	QDTB00MTZJ10
D058		ZENER DIODE DZ-18BSBT265 or	NDTB00DZ18BS
		ZENER DIODE MTZJT-7718B	QDTB00MTZJ18
D153		ZENER DIODE DZ-11BSAT265 or	NDTA00DZ11BS
		ZENER DIODE MTZJT-7711A	QDTA00MTZJ11
D154		ZENER DIODE DZ-11BSAT265 or	NDTA00DZ11BS
		ZENER DIODE MTZJT-7711A	QDTA00MTZJ11
D155		ZENER DIODE DZ-11BSAT265 or	NDTA00DZ11BS
		ZENER DIODE MTZJT-7711A	QDTA00MTZJ11
D156		ZENER DIODE DZ-11BSAT265 or	NDTA00DZ11BS
		ZENER DIODE MTZJT-7711A	QDTA00MTZJ11
D301		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D501		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D502		LED MIE-534A2 or	NPZZM1E534A2
		LED SIR-563ST3F P or	QPQPS1R563ST
		LED SIR-563ST3F Q	QPQQS1R563ST
D553		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
D701		ZENER DIODE DZ-33BSDT265 or	NDTD00DZ33BS
		ZENER DIODE MTZJT-7733D	QDTD00MTZJ33
ICS			
IC001⚠		PHOTOCOUPLER EL817A or	NPEA000EL817
⚠		PHOTOCOUPLER EL817B or	NPEB000EL817
⚠		PHOTOCOUPLER EL817C or	NPEC000EL817
⚠		PHOTOCOUPLER LTV-817B-F or	NPEB0LTV817F
⚠		PHOTOCOUPLER LTV-817C-F or	NPEC0LTV817F
⚠		PHOTOCOUPLER PS2561A-1(Q) or	QPEQPS2561A1

Ref. No.	Mark	Description	Part No.
⚠		PHOTOCOUPLER PS2561A-1(W)	QPEWPS2561A1
IC301		IC:Y/C/A LA71750EM-MPB-E	QSZBA0RSY020
IC451		IC:HIFI LA72648M-MPB-E	QSZBA0RSY033
IC501		SYSCON IC M3776AMCA-AB5GP	QSZAB0RMB192
IC503		IC:EEPROM CAT24WC02JI or	NSZBA0SBG001
		IC BR24L02F-WE2	QSZBA0TRM068
IC561		IC:LED DRIVER PT6958-FN-TP	NSZBA0TG2003
IC640	B	IC:VPS/PDC SLICER LC74793JM-TRM	QSZBA0TSY018
COILS			
L001		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L002		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L003⚠		LINE FILTER 56MH TLF14CB5630R2 or	LLBG00ZTU022
⚠		LINE FILTER 50MH LF-4D-E503	LLBG00ZKQ009
L009		CHOKE COIL 47µH-K or	LLBD00PKV007
		CHOKE COIL 47µH-K or	LLBD00PKV005
		CHOKE COIL 47µH-K	LLBD00PKT001
L010		CHOKE COIL 47µH-K or	LLBD00PKV007
		CHOKE COIL 47µH-K or	LLBD00PKV005
		CHOKE COIL 47µH-K	LLBD00PKT001
L012		INDUCTOR 100µH-J-5FT	LLARJCSTU101
L251		INDUCTOR 5.6µH-K-26T	LLAXKATTU5R6
L301		INDUCTOR(100µH K) LAP02TA101K	LLAXKATTU101
L403		INDUCTOR 47µH-K-5FT	LLARKBSTU470
L451		INDUCTOR 47µH-K-5FT	LLARKBSTU470
L452		INDUCTOR 27µH-K-5FT	LLARKBSTU270
L501		INDUCTOR(100µH K) LAP02TA101K	LLAXKATTU101
L561		INDUCTOR 68µH-K-26T	LLAXKATTU680
L562		INDUCTOR 56µH-K-26T	LLAXKATTU560
L701		PCB JUMPER D0.6-P5.0	JW5.0T
L703		PCB JUMPER D0.6-P5.0	JW5.0T
L704		INDUCTOR 15µH-K-26T	LLAXKATTU150
L851		INDUCTOR 1.8µH-K-26T	LLAXKATTU1R8
TRANSISTORS			
Q001⚠		FET 2SK3566	QFWZ02SK3566
Q002		TRANSISTOR KTC3199(BL) or	NQS50KTC3199
		TRANSISTOR 2SC1815-BL(TPE2)	QQS202SC1815
Q003		TRANSISTOR KTC3199(BL) or	NQS50KTC3199
		TRANSISTOR 2SC1815-BL(TPE2)	QQS202SC1815
Q004		TRANSISTOR KTA1267(GR) or	NQS10KTA1267
		TRANSISTOR KTA1267(Y)	NQQY0KTA1267
Q051		RES. BUILT-IN TRANSISTOR KRA104M or	NQSZ0KRA104M
		RES. BUILT-IN TRANSISTOR BN1L4M-T	QQSZ00BN1L4M
Q052		RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR BA1F4M-T	QQSZ00BA1F4M
Q053		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q054		TRANSISTOR KTC3205(Y) or	NQSY0KTC3205
		TRANSISTOR 2SC3266-Y(TPE2)	QQSY02SC3266
Q055		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q056		RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
		RES. BUILT-IN TRANSISTOR BN1F4M-T	QQSZ00BN1F4M
Q057		TRANSISTOR KTA1281(Y) or	NQSY0KTA1281
		TRANSISTOR 2SA1020(Y)	QQSY02SA1020
Q058		RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR BA1F4M-T	QQSZ00BA1F4M
Q059		RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR BA1F4M-T	QQSZ00BA1F4M
Q351		CHIP TRANSISTOR KTA1504GR-RTK or	NQ140KTA1504
		CHIP TRANSISTOR KTA1504Y-RTK	NQ1Y0KTA1504
Q352		TRANSISTOR KTC3199(Y) or	NQSY0KTC3199
		TRANSISTOR KTC3199(GR) or	NQS10KTC3199
		TRANSISTOR 2SC2785(J) or	QQSJ02SC2785
		TRANSISTOR 2SC2785(H) or	QQSH02SC2785
		TRANSISTOR 2SC2785(F) or	QQSF02SC2785
		TRANSISTOR 2SC1815-Y(TPE2) or	QQSY02SC1815
		TRANSISTOR 2SC1815-GR(TPE2)	QQS102SC1815
Q401		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q402		TRANSISTOR KTC3203(Y) or	NQSY0KTC3203
		TRANSISTOR 2SC2120-Y(TPE2)	QQSY02SC2120
Q403		RES. BUILT-IN TRANSISTOR KRA103M or	NQSZ0KRA103M
		RES. BUILT-IN TRANSISTOR BN1F4M-T	QQSZ00BN1F4M
Q405		CHIP TRANSISTOR FMG4A T148 or	QQ2Z000FMG4A
		CHIP TRANSISTOR RN1511(TE85R)	QQ2Z00RN1511
Q406		CHIP TRANSISTOR KTC3875Y-RTK	NQ1Y0KTC3875
Q451		CHIP TRANSISTOR KRC103S RTK or	NQ1Z0KRC103S
		CHIP TRANSISTOR FA1F4M-T1B	QQ8Z00FA1F4M
Q501		TRANSISTOR KTC3199(BL) or	NQS50KTC3199
		TRANSISTOR 2SC1815-BL(TPE2)	QQS202SC1815
Q503		PHOTO TRANSISTOR PT204-6B-12 or	NPWZT2046B12
		PHOTO TRANSISTOR MID-32A22F	NPWZ1D32A22F
Q551		TRANSISTOR KTC3199(BL) or	NQS50KTC3199
		TRANSISTOR 2SC1815-BL(TPE2)	QQS202SC1815
Q552		RES. BUILT-IN TRANSISTOR KRC103M or	NQSZ0KRC103M
		RES. BUILT-IN TRANSISTOR BA1F4M-T	QQSZ00BA1F4M
RESISTORS			
R002		METAL OXIDE FILM RES. 1W J 150k Ω or	RN01154ZU001
		METAL OXIDE FILM RES. 1W J 150k Ω	RN01154KE009
R003		CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R004		CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R005		CARBON RES. 1/6W G 680 Ω or	RCX6GATZ0681
		CARBON RES. 1/4W G 680 Ω	RCX4GATZ0681
R006		METAL OXIDE FILM RES. 1W J 1.8 Ω or	RN011R8ZU001
		METAL OXIDE FILM RES. 1W J 1.8 Ω	RN011R8KE009
R007		CARBON RES. 1/6W J 22k Ω or	RCX6JATZ0223
		CARBON RES. 1/4W J 22k Ω	RCX4JATZ0223
R008		CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
		CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R009		CARBON RES. 1/6W G 3.3k Ω or	RCX6GATZ0332
		CARBON RES. 1/4W G 3.3k Ω	RCX4GATZ0332
R011		CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R012		CARBON RES. 1/4W J 390k Ω	RCX4JATZ0394
R013		CARBON RES. 1/6W J 470k Ω or	RCX6JATZ0474
		CARBON RES. 1/4W J 470k Ω	RCX4JATZ0474
R014		CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
		CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R015		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R016		CARBON RES. 1/6W J 100k Ω or	RCX6JATZ0104
		CARBON RES. 1/4W J 100k Ω	RCX4JATZ0104
R017		CHIP RES.(1608) 1/10W J 220k Ω	RRXAJR5Z0224
R018		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R021		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R022		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R023		CHIP RES.(1608) 1/10W F 2.2k Ω or	RRXAFR5H0222
		CHIP RES.(1608) 1/10W F 2.2k Ω	RRXAFR5Z0222

Ref. No.	Mark	Description	Part No.
R024		CHIP RES.(1608) 1/10W J 33k Ω	RRXAJR5Z0333
R025		CHIP RES.(1608) 1/10W F 3.3k Ω or	RRXAFR5H0332
		CHIP RES. 1/10W F 3.3k Ω	RRXAFR5Z0332
R026		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R027		CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R028		CARBON RES. 1/4W J 1M Ω	RCX4JATZ0105
R030		CHIP RES.(1608) 1/10W F 2.2k Ω or	RRXAFR5H0222
		CHIP RES.(1608) 1/10W F 2.2k Ω	RRXAFR5Z0222
R031		CHIP RES.(1608) 1/10W J 56k Ω	RRXAJR5Z0563
R032		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R053		PCB JUMPER D0.6-P5.0	JW5.0T
R054		CHIP RES.(1608) 1/10W J 180 Ω	RRXAJR5Z0181
R058		CARBON RES. 1/6W J 820 Ω or	RCX6JATZ0821
		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R060		CARBON RES. 1/6W J 2.7k Ω or	RCX6JATZ0272
		CARBON RES. 1/4W J 2.7k Ω	RCX4JATZ0272
R061		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R062		CARBON RES. 1/6W J 10k Ω or	RCX6JATZ0103
		CARBON RES. 1/4W J 10k Ω	RCX4JATZ0103
R063		CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R064		CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R065		CARBON RES. 1/4W J 1.2k Ω	RCX4JATZ0122
R066		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R067		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R068		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R071		CARBON RES. 1/6W J 3.9k Ω or	RCX6JATZ0392
		CARBON RES. 1/4W J 3.9k Ω	RCX4JATZ0392
R073		CARBON RES. 1/6W J 1 Ω or	RCX6JATZ01R0
		CARBON RES. 1/4W J 1 Ω	RCX4JATZ01R0
R251		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R252		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R301		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJR5Z0122
R302		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R305		CHIP RES.(1608) 1/10W J 3.9k Ω	RRXAJR5Z0392
R307		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R308		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJR5Z0682
R309		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJR5Z0101
R310		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R311		CHIP RES.(1608) 1/10W J 18k Ω	RRXAJR5Z0183
R312		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R313		CHIP RES.(1608) 1/10W J 18k Ω	RRXAJR5Z0183
R315		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R316		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJR5Z0682
R317		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJR5Z0122
R318		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R319		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R320		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R321		CARBON RES. 1/6W J 33 Ω or	RCX6JATZ0330
		CARBON RES. 1/4W J 33 Ω	RCX4JATZ0330
R322		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJR5Z0750
R323		CARBON RES. 1/6W J 33 Ω or	RCX6JATZ0330
		CARBON RES. 1/4W J 33 Ω	RCX4JATZ0330
R324		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R325		CHIP RES.(1608) 1/10W J 33 Ω	RRXAJR5Z0330
R326		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R330		CHIP RES.(1608) 1/10W J 5.6M Ω	RRXAJR5Z0565
R331		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R332		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R333		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R334		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000

Ref. No.	Mark	Description	Part No.
R351		CHIP RES.(1608) 1/10W J 180 Ω	RRXAJR5Z0181
R352		CHIP RES.(1608) 1/10W J 150 Ω	RRXAJR5Z0151
R355		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R357		CHIP RES.(1608) 1/10W J 220 Ω	RRXAJR5Z0221
R358		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJR5Z0152
R360		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R361		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R401		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R402		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R403		CHIP RES.(1608) 1/10W J 47k Ω	RRXAJR5Z0473
R404		CARBON RES. 1/6W J 100 Ω or	RCX6JATZ0101
		CARBON RES. 1/4W J 100 Ω	RCX4JATZ0101
R407		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R408		CHIP RES.(1608) 1/10W J 12k Ω	RRXAJR5Z0123
R409		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R411		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R412		CHIP RES.(1608) 1/10W J 27k Ω	RRXAJR5Z0273
R413		CHIP RES.(1608) 1/10W J 330k Ω	RRXAJR5Z0334
R414		CHIP RES.(1608) 1/10W J 120 Ω	RRXAJR5Z0121
R415		CHIP RES.(1608) 1/10W J 12k Ω	RRXAJR5Z0123
R416		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R417		CHIP RES.(1608) 1/10W J 560 Ω	RRXAJR5Z0561
R418		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R421		CHIP RES.(1608) 1/10W J 12k Ω	RRXAJR5Z0123
R422		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R425		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R426		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R429		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R430		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R431		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R451		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R452		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R453		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R454		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R455		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R456		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R457		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R458		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R459		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R460		CHIP RES.(1608) 1/10W J 470 Ω	RRXAJR5Z0471
R461		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R462		CHIP RES.(1608) 1/10W J 2.7k Ω	RRXAJR5Z0272
R463		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R464		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R465		CHIP RES.(1608) 1/10W J 8.2k Ω	RRXAJR5Z0822
R466		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R467		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R468		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R469		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R470		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R471		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R472		CHIP RES.(1608) 1/10W J 150 Ω	RRXAJR5Z0151
R473		CHIP RES.(1608) 1/10W J 150 Ω	RRXAJR5Z0151
R474		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R475		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R476		CHIP RES.(1608) 1/10W J 33 Ω	RRXAJR5Z0330
R477		CHIP RES.(1608) 1/10W J 33 Ω	RRXAJR5Z0330
R478		CHIP RES.(1608) 1/10W J 22k Ω	RRXAJR5Z0223
R479		CHIP RES.(1608) 1/10W J 6.8k Ω	RRXAJR5Z0682
R480		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJR5Z0101
R481		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJR5Z0101

Ref. No.	Mark	Description	Part No.
R501		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R502		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R503		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R504		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R505		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R506		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R508	B	CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R509		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R510		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R511		CHIP RES.(1608) 1/10W J 100k Ω	RRXAJR5Z0104
R513		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R514		CHIP RES.(1608) 1/10W J 820 Ω	RRXAJR5Z0821
R516		CHIP RES.(1608) 1/10W J 330k Ω	RRXAJR5Z0334
R517		CHIP RES.(1608) 1/10W J 560 Ω	RRXAJR5Z0561
R518		CHIP RES.(1608) 1/10W J 470 Ω	RRXAJR5Z0471
R520		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R521		CHIP RES.(1608) 1/10W J 220k Ω	RRXAJR5Z0224
R522		CHIP RES.(1608) 1/10W J 39k Ω	RRXAJR5Z0393
R523		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R524		CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R525		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJR5Z0152
R526		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R527		CHIP RES.(1608) 1/10W J 680 Ω	RRXAJR5Z0681
R528		CHIP RES.(1608) 1/10W J 18k Ω	RRXAJR5Z0183
R529		CARBON RES. 1/4W J 270 Ω	RCX4JATZ0271
R530		CHIP RES.(1608) 1/10W J 180 Ω	RRXAJR5Z0181
R531		CHIP RES.(1608) 1/10W J 68k Ω	RRXAJR5Z0683
R533		CHIP RES.(1608) 1/10W J 33k Ω	RRXAJR5Z0333
R534		CARBON RES. 1/6W G 3.6k Ω or	RCX6GATZ0362
		CARBON RES. 1/4W G 3.6k Ω	RCX4GATZ0362
R535		CARBON RES. 1/6W G 10k Ω or	RCX6GATZ0103
		CARBON RES. 1/4W G 10k Ω	RCX4GATZ0103
R536		CARBON RES. 1/6W G 470 Ω or	RCX6GATZ0471
		CARBON RES. 1/4W G 470 Ω	RCX4GATZ0471
R537		CARBON RES. 1/6W G 22k Ω or	RCX6GATZ0223
		CARBON RES. 1/4W G 22k Ω	RCX4GATZ0223
R538		CARBON RES. 1/6W G 1.5k Ω or	RCX6GATZ0152
		CARBON RES. 1/4W G 1.5k Ω	RCX4GATZ0152
R539		CARBON RES. 1/6W G 4.7k Ω or	RCX6GATZ0472
		CARBON RES. 1/4W G 4.7k Ω	RCX4GATZ0472
R540		CHIP RES.(1608) 1/10W J 390k Ω	RRXAJR5Z0394
R541		CHIP RES.(1608) 1/10W J 390k Ω	RRXAJR5Z0394
R542		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R543		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R544		CHIP RES.(1608) 1/10W J 2.7k Ω	RRXAJR5Z0272
R545		CHIP RES.(1608) 1/10W J 2.2k Ω	RRXAJR5Z0222
R546		CHIP RES.(1608) 1/10W J 12k Ω	RRXAJR5Z0123
R547		CHIP RES.(1608) 1/10W J 1.8k Ω	RRXAJR5Z0182
R548		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R549		CHIP RES.(1608) 1/10W J 1.2k Ω	RRXAJR5Z0122
R551		CHIP RES.(1608) 1/10W J 100 Ω	RRXAJR5Z0101
R552		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R553		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R556		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R557		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R566		CHIP RES.(1608) 1/10W J 56k Ω	RRXAJR5Z0563
R601		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R604		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R605		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R611		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R613	A	CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103

Ref. No.	Mark	Description	Part No.
R614	B	CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R638	B	CHIP RES.(1608) 1/10W J 100 Ω	RRXAJR5Z0101
R641	B	CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R642	B	CHIP RES.(1608) 1/10W J 2.7k Ω	RRXAJR5Z0272
R643	B	CHIP RES.(1608) 1/10W J 5.6k Ω	RRXAJR5Z0562
R644	B	CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R645	B	CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R701		CARBON RES. 1/6W J 1.8k Ω or	RCX6JATZ0182
		CARBON RES. 1/4W J 1.8k Ω	RCX4JATZ0182
R702		CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R703		CARBON RES. 1/6W J 1k Ω or	RCX6JATZ0102
		CARBON RES. 1/4W J 1k Ω	RCX4JATZ0102
R706		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R707		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R756		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
R757		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJR5Z0750
R758		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R759		CHIP RES.(1608) 1/10W J 4.7k Ω	RRXAJR5Z0472
R851		CHIP RES.(1608) 1/10W J 1.5k Ω	RRXAJR5Z0152
R852		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R853		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
		SWITCHES	
SW501		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH TC-1104(H=9.5)	SST0101DNG01
SW502		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH TC-1104(H=9.5)	SST0101DNG01
SW503		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH TC-1104(H=9.5)	SST0101DNG01
SW504		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH TC-1104(H=9.5)	SST0101DNG01
SW505		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH TC-1104(H=9.5)	SST0101DNG01
SW506		LEAF SWITCH MXS01830MVP0	SSC0101MCE03
SW507		ROTARY MODE SWITCH SSS-53MD	SSR0106KB003
SW509		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH TC-1104(H=9.5)	SST0101DNG01
SW510		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH TC-1104(H=9.5)	SST0101DNG01
SW511		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH TC-1104(H=9.5)	SST0101DNG01
SW512		TACT SWITCH KSM0614B or	SST0101HH013
		TACT SWITCH SKQSAF001A or	SST0101AL041
		TACT SWITCH TC-1104(H=9.5)	SST0101DNG01
		MISCELLANEOUS	
2B7		SHIELD ASSEMBLY HG470ED	0VM416072
2B8		BUSH, LED(F) H3700UD	0VM409508
2B46		ROHM HOLDER H7770JD	0VM304573
A4		JACK BOARD(U27 FTZ) HE480ED	0VM203840
AC001⚠		AC CORD PE8B2CG1H0A-057	WAE0172LW003
F001⚠		FUSE T1.6AL/250V or	PAGC20BW3162
⚠		FUSE 50T016H 1.6A/250V	PAGH20BHV162

Ref. No.	Mark	Description	Part No.
FH001		FUSE HOLDER MSF-015 or	XH01Z00LY001
		FUSE HOLDER DFH-001	XH01Z00RP001
FH002		FUSE HOLDER MSF-015 or	XH01Z00LY001
		FUSE HOLDER DFH-001	XH01Z00RP001
FP562		LED DISPLAY LFU-4421-2003A	NP8Z4212003A
J902		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
JK756		RCA JACK(YELLOW) MSP-281V4-B	JXRL010LY003
JK757		RCA JACK(WHITE) MSP-281V1-B	JXRL010LY005
JK758		RCA JACK(RED) MSP-281V3-A	JYRL010LY002
JW001		FLAT CABLE, 11P AWG26#2651/P1.25/150	WX1HC460-002
JW002		FLAT CABLE, 11P AWG26#2651/P1.25/150	WX1HC460-002
PS503		PHOTO INTERRUPTER RPI-302C70	QPWZP1302C70
RS501		REMOTE RECEIVER MIM-93M9DKF or	USESJRSUNT03
		REMOTE RECEIVER PIC-37042LQ	USESJRSKK038
T001⚠		SWITCHING TRANSFORMER 04702 or	LTT00EPKT116
⚠		SWITCHING TRANSFORMER BCK-25-344D	LTT00EPXB007
TP301		PCB JUMPER D0.6-P10.0	JW10.0T
TP501		PCB JUMPER D0.6-P6.0	JW6.0T
TP502		PCB JUMPER D0.6-P5.0	JW5.0T
TP506		PCB JUMPER D0.6-P5.0	JW5.0T
TP507		PCB JUMPER D0.6-P6.0	JW6.0T
TU701		TUNER UNIT TMDG2-661A	UTUNPLBAL015
VR501		CARBON P.O.T. 100k Ω B	VRCB104HH014
X301		X'TAL 4.433619MHz or	FXC445LLN001
		X'TAL 4.433619MHz	1811388
X501		X'TAL 12.000MHz	FXD126LDS001
X502		X'TAL 32.768kHz(20PPM) or	FXC323LQUA01
		X'TAL 32.768kHz(20PPM)	FXC323LDS002

SUB JACK CBA

Ref. No.	Mark	Description	Part No.
		SUB JACK CBA (MCV-B) Consists of the following	----------
CAPACITORS			
C751		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C752		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
RESISTORS			
R751		CHIP RES.(1608) 1/10W J 820 Ω	RRXAJR5Z0821
R752		CHIP RES.(1608) 1/10W J 820 Ω	RRXAJR5Z0821
MISCELLANEOUS			
JK751		RCA JACK MSP-282V-12 PBSN	JXRL030LY011
JW003		FLAT CABLE, 3P AWG26#2651/P2.0/200	WX1HE480-001

JACK CBA

Ref. No.	Mark	Description	Part No.
		JACK CBA (MCV-C) Consists of the following	----------
CAPACITORS			
C101		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C102		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C103		CHIP CERAMIC CAP.(1608) CH J 470pF/50V or	CHD1JJ3CH471
		CHIP CERAMIC CAP. CG J 470pF/50V	CHD1JJ3CG471
C104		CHIP CERAMIC CAP.(1608) CH J 470pF/50V or	CHD1JJ3CH471
		CHIP CERAMIC CAP. CG J 470pF/50V	CHD1JJ3CG471
C105		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C107		ELECTROLYTIC CAP. 1µF/50V M H7	CE1JMAVSL1R0
C108		CHIP CERAMIC CAP. B K 1000pF/50V	CHD1JK30B102
C109		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C110		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C111		CHIP CERAMIC CAP.(1608) CH J 470pF/50V or	CHD1JJ3CH471
		CHIP CERAMIC CAP. CG J 470pF/50V	CHD1JJ3CG471
C112		CHIP CERAMIC CAP.(1608) CH J 470pF/50V or	CHD1JJ3CH471
		CHIP CERAMIC CAP. CG J 470pF/50V	CHD1JJ3CG471
C113		CHIP CERAMIC CAP. B K 2200pF/50V	CHD1JK30B222
C115		ELECTROLYTIC CAP. 100µF/16V M H7	CE1CMAVSL101
C116		ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASTL471
C117		ELECTROLYTIC CAP. 470µF/6.3V M	CE0KMASTL471
DIODES			
D101		ZENER DIODE DZ-11BSAT265 or	NDTA00DZ11BS
		ZENER DIODE MTZJT-7711A	QDTA00MTZJ11
D102		ZENER DIODE DZ-11BSAT265 or	NDTA00DZ11BS
		ZENER DIODE MTZJT-7711A	QDTA00MTZJ11
D103		ZENER DIODE DZ-11BSAT265 or	NDTA00DZ11BS
		ZENER DIODE MTZJT-7711A	QDTA00MTZJ11
D105		ZENER DIODE DZ-11BSAT265 or	NDTA00DZ11BS
		ZENER DIODE MTZJT-7711A	QDTA00MTZJ11
COILS			
L101		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
L102		BEAD CORE B16 RH 3.5X10X1.3	XL03010XM001
TRANSISTORS			
Q101		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
Q102		TRANSISTOR KTA1266(GR) or	NQS40KTA1266
		TRANSISTOR 2SA1015-GR(TPE2)	QQS102SA1015
RESISTORS			
R101		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R103		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R104		CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
		CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R106		CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
		CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R108		CARBON RES. 1/4W J 68 Ω	RCX4JATZ0680
R109		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJR5Z0750
R110		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R112		CARBON RES. 1/4W J 820 Ω	RCX4JATZ0821
R113		CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
		CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R115		CARBON RES. 1/6W J 4.7k Ω or	RCX6JATZ0472
		CARBON RES. 1/4W J 4.7k Ω	RCX4JATZ0472
R116		CARBON RES. 1/6W J 15k Ω or	RCX6JATZ0153
		CARBON RES. 1/4W J 15k Ω	RCX4JATZ0153
R117		CHIP RES.(1608) 1/10W J 10k Ω	RRXAJR5Z0103
R118		CARBON RES. 1/4W J 68 Ω	RCX4JATZ0680
R119		CHIP RES.(1608) 1/10W J 75 Ω	RRXAJR5Z0750
R120		CARBON RES. 1/6W J 680 Ω or	RCX6JATZ0681
		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R123		CHIP RES.(1608) 1/10W J 220 Ω	RRXAJR5Z0221
R125		CARBON RES. 1/6W J 680 Ω or	RCX6JATZ0681
		CARBON RES. 1/4W J 680 Ω	RCX4JATZ0681
R126		CHIP RES.(1608) 1/10W J 220 Ω	RRXAJR5Z0221
R127		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
MISCELLANEOUS			
2L022		SCREW, P-TIGHT M3X10 WASHER HEAD+	GCMP3100

Ref. No.	Mark	Description	Part No.
A5		JACK BOARD(2-21P) HE470ED	0VM203835
JK101		RGB CONNECTOR MRC-021V-01	JXGL210LY002
JK102		RGB CONNECTOR MRC-021V-01	JXGL210LY002

SENSOR CBA

Ref. No.	Mark	Description	Part No.
		SENSOR CBA Consists of the following	0VSA14893
		TRANSISTORS	
Q504		PHOTO TRANSISTOR PT204-6B-12 or	NPWZT2046B12
		PHOTO TRANSISTOR MID-32A22F	NPWZ1D32A22F
Q505		PHOTO TRANSISTOR PT204-6B-12 or	NPWZT2046B12
		PHOTO TRANSISTOR MID-32A22F	NPWZ1D32A22F

AFV CBA

Ref. No.	Mark	Description	Part No.
		AFV CBA Consists of the following	0VSA14857
		CAPACITORS	
C1		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C4		CHIP CERAMIC CAP. CH J 56pF/50V or	CHD1JJ3CH560
		CHIP CERAMIC CAP. CG J 56pF/50V	CHD1JJ3CG560
C5		CHIP CERAMIC CAP.(1608) CH J 22pF/50V or	CHD1JJ3CH220
		CHIP CERAMIC CAP. CG J 22pF/50V	CHD1JJ3CG220
C6		CHIP CERAMIC CAP. CH J 56pF/50V or	CHD1JJ3CH560
		CHIP CERAMIC CAP. CG J 56pF/50V	CHD1JJ3CG560
C7		CHIP CERAMIC CAP. CH C 3pF/50V or	CHD1JC3CH3R0
		CHIP CERAMIC CAP. CJ C 3pF/50V or	CHD1JC3CJ3R0
		CHIP CERAMIC CAP. CH D 3pF/50V	CHD1JD3CH3R0
C8		CHIP CERAMIC CAP. CH C 3pF/50V or	CHD1JC3CH3R0
		CHIP CERAMIC CAP. CJ C 3pF/50V or	CHD1JC3CJ3R0
		CHIP CERAMIC CAP. CH D 3pF/50V	CHD1JD3CH3R0
C11		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C12		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C13		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C14		CHIP CERAMIC CAP.(1608) B K 0.01µF/50V	CHD1JK30B103
C15		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C16		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C17		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C19		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C20		ELECTROLYTIC CAP. 3.3µF/50V M H7	CE1JMASSL3R3
C21		CHIP CERAMIC CAP.(1608) F Z 0.1µF/50V or	CHD1JZ30F104
		CHIP CERAMIC CAP.(1608) F Z 0.1µF/25V or	CHD1EZ30F104
		CHIP CERAMIC CAP. FZ Z 0.1µF/50V	CHD1JZ3FZ104
C22		ELECTROLYTIC CAP. 10µF/16V M H7	CE1CMASSL100
C24		ELECTROLYTIC CAP. 0.22µF/50V M H7	CE1JMASSLR22
		CONNECTOR	
CN1		ANGLE PIN HEADER, 9P 6029B-1-09Z003-T	5700069
		DIODES	
D2		SWITCHING DIODE 1N4148M or	NDTZ01N4148M
		SWITCHING DIODE 1SS133(T-77)	QDTZ001SS133
		ICS	
IC1		IC:AUDIO PROCESSOR MSP3407G-QG-B8 or	NSZBA0SP3001
		IC:AUDIO PROCESSOR MSP3407G-QG-B8-V3	NSZBA0SP3004
		COILS	
L1		INDUCTOR 10µH-K-26T	LLAXKATTU100
L2		PCB JUMPER D0.6-P5.0	JW5.0T
L3		INDUCTOR 18µH-K-26T	LLAXKATTU180
L4		INDUCTOR 10µH-K-26T	LLAXKATTU100
		RESISTORS	
R1		CHIP RES.(1608) 1/10W J 1k Ω	RRXAJR5Z0102
R4		CHIP RES.(1608) 1/10W J 120k Ω	RRXAJR5Z0124
R5		CHIP RES.(1608) 1/10W 0 Ω	RRXAZR5Z0000
		MISCELLANEOUS	
X1		X'TAL 18.432MHz	FXD186LLN001

DECK MECHANISM SECTION

VIDEO CASSETTE RECORDER

29A-650/29A-654

Sec. 2: Deck Mechanism Section

- **Standard Maintenance**
- **Mechanism Alignment Procedures**
- **Disassembly / Assembly of Mechanism**
- **Deck Exploded Views**
- **Deck Parts List**

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STANDARD MAINTENANCE

Service Schedule of Components

This maintenance chart shows you the standard of replacement and cleaning time for each part.
Because those may replace depending on environment and purpose for use, use the chart for reference.

H: Hours ○: Cleaning ●: Replace

Deck		Periodic Service Schedule			
Ref.No.	**Part Name**	**1,000 H**	**2,000 H**	**3,000 H**	**4,000 H**
B2	Cylinder Assembly	○	●	○	●
B3	Loading Motor Assembly			●	
B8	Pulley Assembly		●		●
B587	Tension Lever Assembly		●		●
B31	ACE Head Assembly			●	
B573, B574	Reel S, Reel T			●	
B37	Capstan Motor		●		●
B52	Cap Belt		●		●
*B73	FE Head			●	
*B86	F Brake Assembly (HI)		●		●
B133	Idler Assembly (HI)		●		●
B410	Pinch Arm Assembly		●		●
B414	M Brake (SP) Assembly (HI)		●		●
B416	M Brake (TU) Assembly (HI)		●		●
B525	LDG Belt		●		●

Notes:

1. Clean all parts for the tape transport (Upper Drum with Video Head / Pinch Roller / ACE Head / FE Head) using 90% Isopropyl Alcohol.
2. After cleaning the parts, do all DECK ADJUSTMENTS.
3. For the reference numbers listed above, refer to Deck Exploded Views.
   * B73 ------ Recording model only
   * B86 ------ Not used in 2 head model.

Cleaning

Cleaning of Video Head

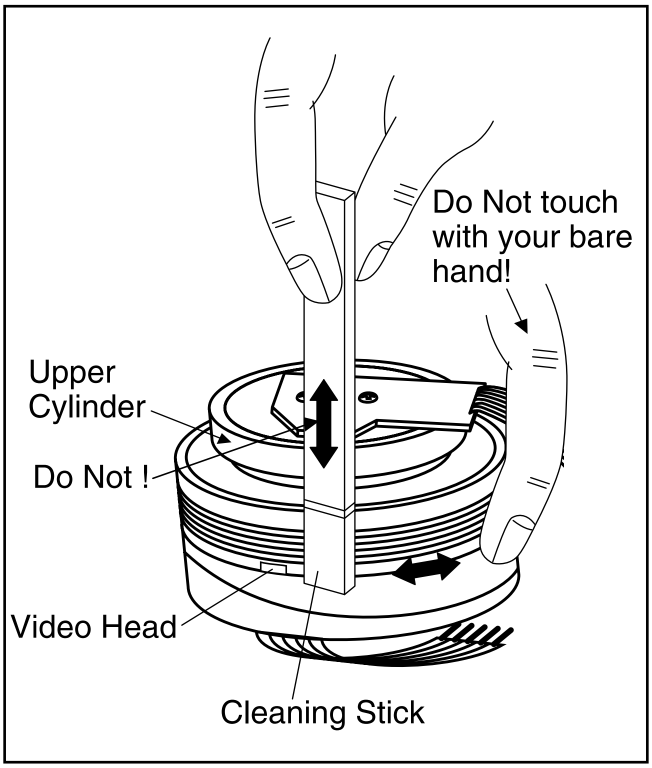
Clean the head with a head cleaning stick or chamois cloth.

Procedure

1. Remove the top cabinet.
2. Put on a glove (thin type) to avoid touching the upper and lower drum with your bare hand.
3. Put a few drops of 90% Isopropyl alcohol on the head cleaning stick or on the chamois cloth and, by slightly pressing it against the head tip, turn the upper drum to the right and to the left.

Notes:

1. The video head surface is made of very hard material, but since it is very thin, avoid cleaning it vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit.
3. Do not reuse a stained head cleaning stick or a stained chamois cloth.



Cleaning of ACE Head

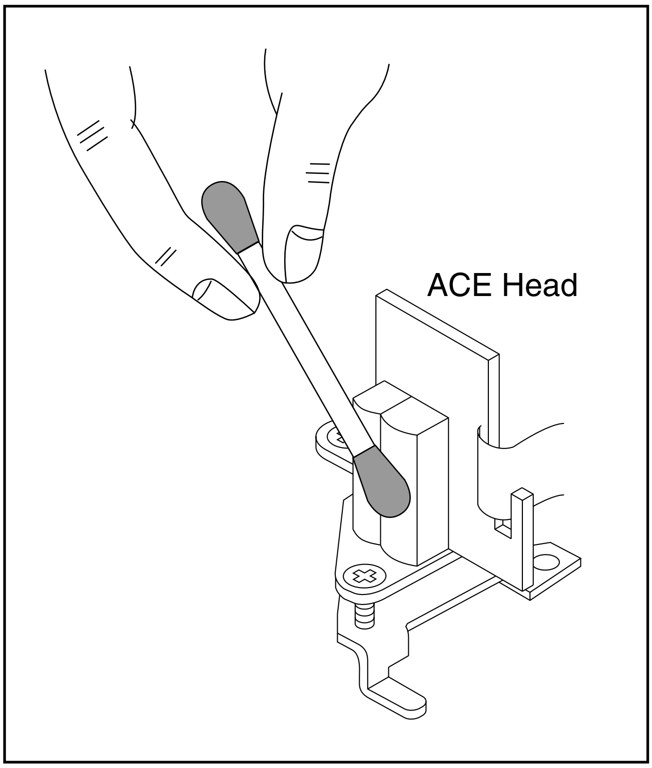
Clean the head with a cotton swab.

Procedure

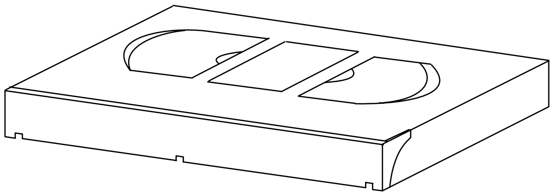
1. Remove the top cabinet.
2. Dip the cotton swab in 90% isopropyl alcohol and clean the ACE Head. Be careful not to damage the upper drum and other tape running parts.

Notes:

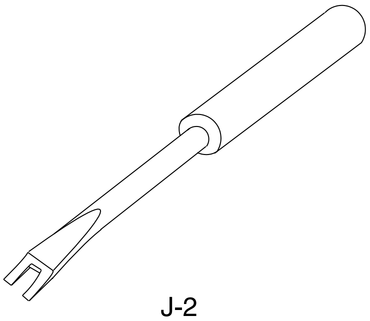
1. Avoid cleaning the ACE Head vertically.
2. Wait for the cleaned part to dry thoroughly before operating the unit or damage may occur.



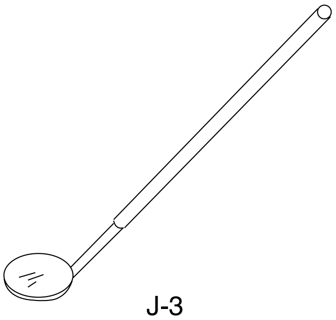
SERVICE FIXTURE AND TOOLS



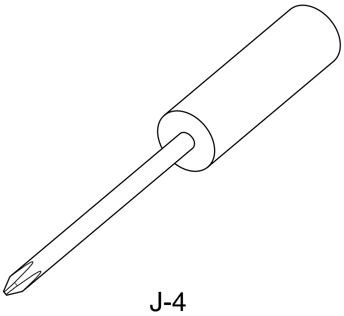
J-1-1, J-1-2



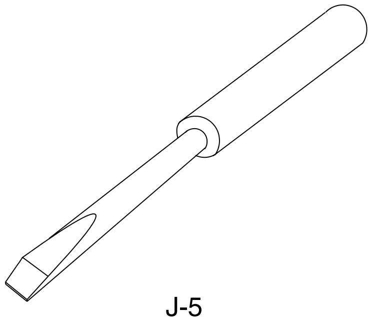
J-2



J-3



J-4



J-5

Ref. No.	Name	Part No.	Adjustment
J-1-1	Alignment Tape	FL6A	Head Adjustment of ACE Head
J-1-2	Alignment Tape	FL6N8 (2 Head model) FL6NS8 (4 Head model)	Azimuth and X Value Adjustment of ACE Head / Adjustment of Envelope Waveform
J-2	Guide Roller Adj. Screwdriver	Available Locally	Guide Roller
J-3	Mirror	Available Locally	Tape Transportation Check
J-4	Azimuth Adj. Screwdriver +	Available Locally	ACE Head Height
J-5	Flat Screwdriver -	Available Locally	X Value

MECHANICAL ALIGNMENT PROCEDURES

Explanation of alignment for the tape to correctly run starts on the next page. Refer to the information below on this page if a tape gets stuck, for example, in the mechanism due to some electrical trouble of the unit.

Service Information

A. Method for Manual Tape Loading/Unloading

To load a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Case and Front Assembly.
3. Insert a cassette tape. Though the tape will not be automatically loaded, make sure that the cassette tape is all the way in at the inlet of the Cassette Holder. To confirm this, lightly push the cassette tape further in and see if the tape comes back out, by a spring motion, just as much as you have pushed in.
4. Turn the LDG Belt in the appropriate direction shown in Fig. M1 for a minute or two to complete this task.

To unload a cassette tape manually:

1. Disconnect the AC plug.
2. Remove the Top Case and Front Assembly.
3. Make sure that the Moving guide preparations are in the Eject Position.
4. Turn the LDG Belt in the appropriate direction shown in Fig. M1 until the Moving guide preparations come to the Eject Position. Stop turning when the preparations begin clicking or can not be moved further. However, the tape will be left wound around the cylinder.
5. Turn the LDG Belt in the appropriate direction continuously, and the cassette tape will be ejected. Allow a minute or two to complete this task.

B. Method to place the Cassette Holder in the tape-loaded position without a cassette tape

1. Disconnect the AC Plug.
2. Remove the Top Case and Front Assembly.
3. Turn the LDG Belt in the appropriate direction shown in Fig. M1. Release the locking tabs shown in Fig. M1 and continue turning the LDG Belt until the Cassette Holder comes to the tape-loaded position. Allow a minute or two to complete this task.

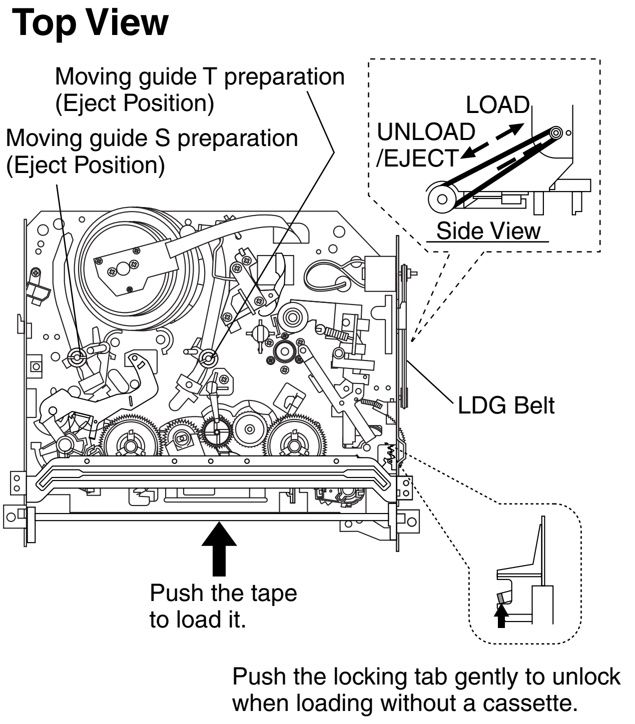

Top View
Moving guide T preparation (Eject Position)
Moving guide S preparation (Eject Position)
LOAD
UNLOAD /EJECT
Side View
LDG Belt
Push the tape to load it.
Push the locking tab gently to unlock when loading without a cassette.

Fig. M1

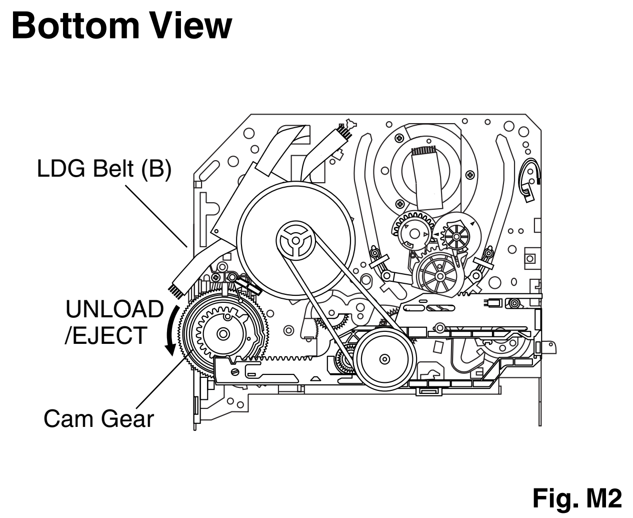


Fig. M2

1. Tape Interchangeability Alignment

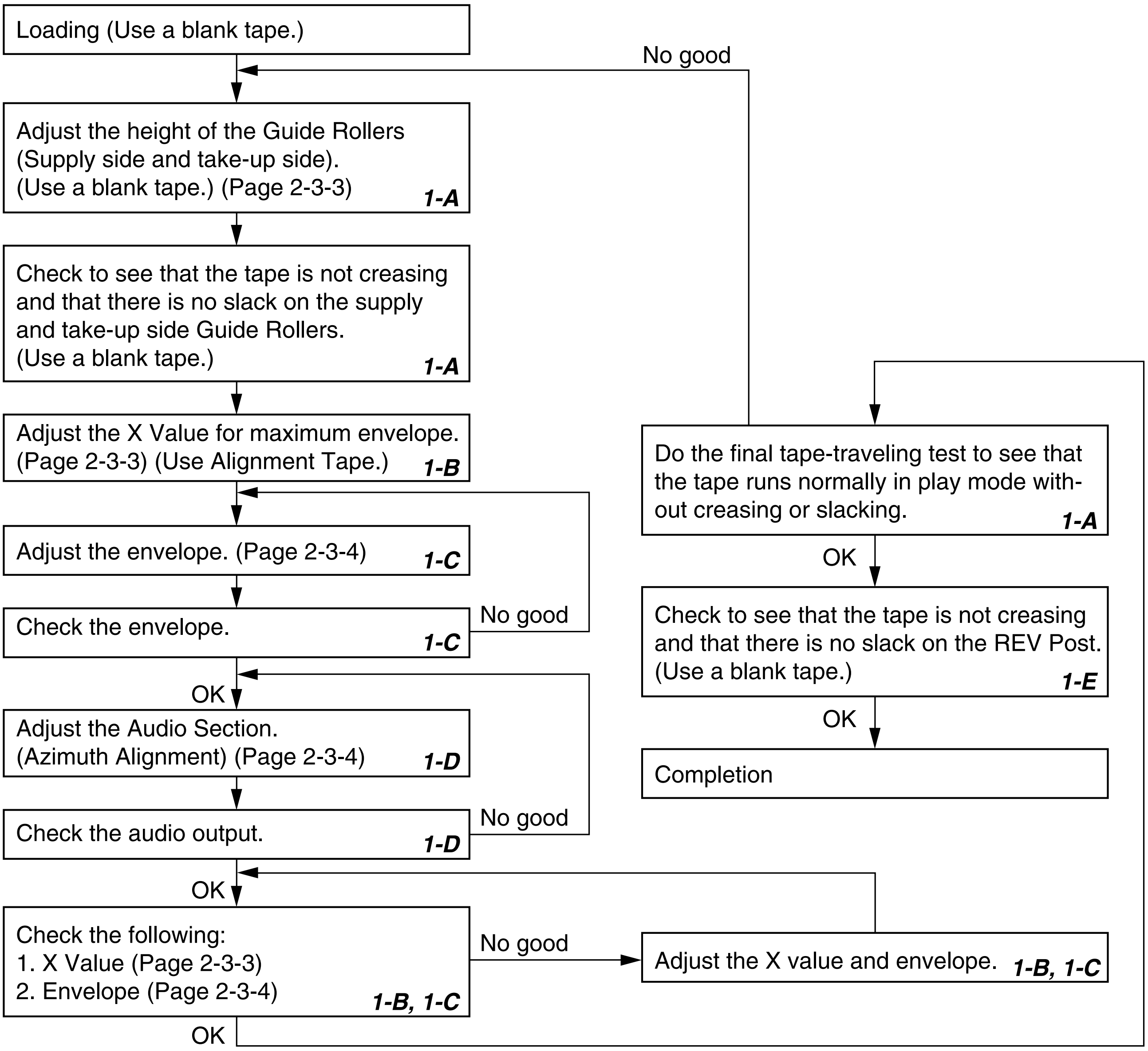
Note:
To do these alignment procedures, make sure that the Tracking Control Circuit is set to the preset position every time a tape is loaded or unloaded. (Refer to page 2-3-4, procedure 1-C, step 2.)

Equipment required:

Dual Trace Oscilloscope
VHS Alignment Tape (FL6NS8)
Guide Roller Adj. Screwdriver
Flat Screwdriver (Purchase Locally)

Note: Before starting this Mechanical Alignment, do all Electrical Adjustment procedures.

Flowchart of Alignment for tape traveling


Loading (Use a blank tape.)
No good
Adjust the height of the Guide Rollers (Supply side and take-up side). (Use a blank tape.) (Page 2-3-3) 1-A
Check to see that the tape is not creasing and that there is no slack on the supply and take-up side Guide Rollers. (Use a blank tape.) 1-A
Adjust the X Value for maximum envelope. (Page 2-3-3) (Use Alignment Tape.) 1-B
Adjust the envelope. (Page 2-3-4) 1-C
Check the envelope. 1-C
No good
OK
Adjust the Audio Section. (Azimuth Alignment) (Page 2-3-4) 1-D
Check the audio output. 1-D
No good
OK
Check the following:
1. X Value (Page 2-3-3)
2. Envelope (Page 2-3-4) 1-B, 1-C
No good
Adjust the X value and envelope. 1-B, 1-C
OK
Do the final tape-traveling test to see that the tape runs normally in play mode without creasing or slacking. 1-A
OK
Check to see that the tape is not creasing and that there is no slack on the REV Post. (Use a blank tape.) 1-E
OK
Completion

1-A. Preliminary/Final Checking and Alignment of Tape Path

Purpose:

To make sure that the tape path is well stabilized.

Symptom of Misalignment:

If the tape path is unstable, the tape will be damaged.

Note: Do not use an Alignment Tape for this procedure. If the unit is not correctly aligned, the tape may be damaged.

1. Playback a blank cassette tape and check to see that the tape runs without creasing at Guide Rollers [2] and [3], and at points A and B on the lead surface. (Refer to Fig. M3 and M4.)
2. If creasing is apparent, align the height of the guide rollers by turning the top of Guide Rollers [2] and [3] with a Guide Roller Adj. Screwdriver. (Refer to Fig. M3 and M5.)

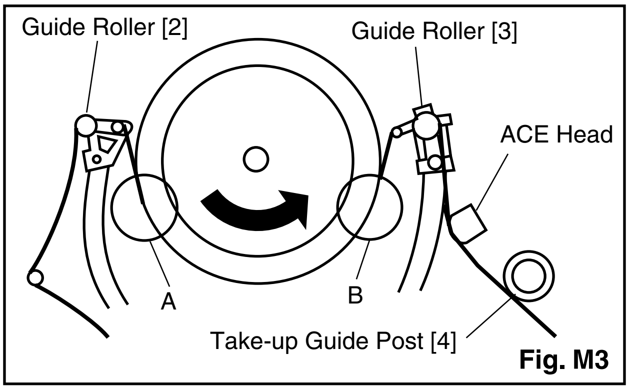


Fig. M3

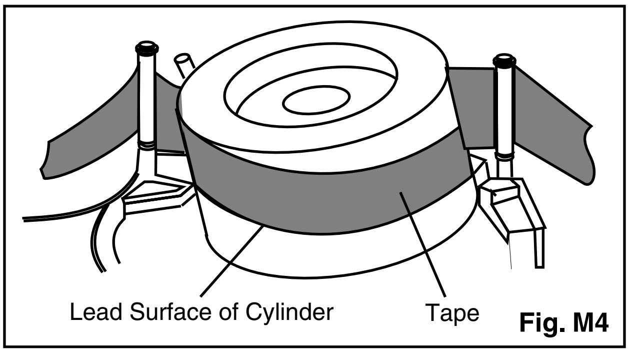


Fig. M4

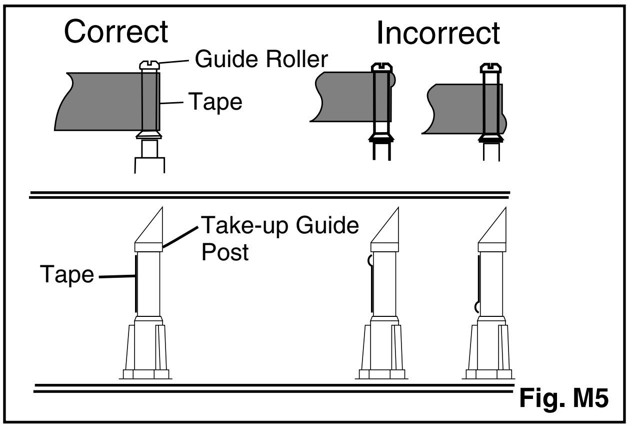


Fig. M5

3. Check to see that the tape runs without creasing at Take-up Guide Post [4] or without snaking between Guide Roller [3] and ACE Head. (Fig. M3 and M5)
4. If creasing or snaking is apparent, adjust the Tilt Adj. Screw of the ACE Head. (Fig. M6)

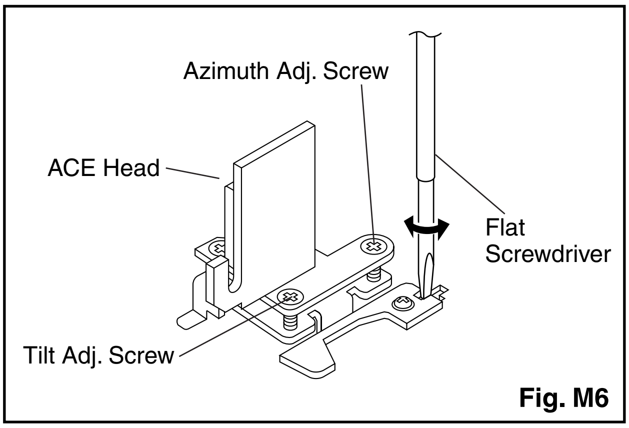


Fig. M6

1-B. X Value Alignment

Purpose:

To obtain maximum PB FM envelope signal at the preset position of the Tracking Control Circuit, align the Horizontal Position of the ACE Head.

Symptom of Misalignment:

If the Horizontal Position of the ACE Head is not properly aligned, maximum PB FM envelope cannot be obtained at the preset position of the Tracking Control Circuit.

1. Connect the oscilloscope to TP301 (C-PB) and TP501 (CTL) on the Main CBA. Use TP502 (RF-SW) as a trigger.
2. Playback the Gray Scale of the Alignment Tape (FL6NS8) and confirm that the PB FM signal is present.
3. Set the Tracking Control Circuit to the preset position by pressing CH UP button on the remote control unit then “PLAY” button on the unit. (Refer to note on bottom of page 2-3-4.)
4. Use the Flat Screwdriver so that the PB FM signal at TP301 (C-PB) is maximum. (Fig. M6)

5. To shift the CTL waveform, press CH UP or CH DOWN button on the remote control unit. Then make sure that the maximum output position of PB FM envelope signal become within ±2ms from preset position.

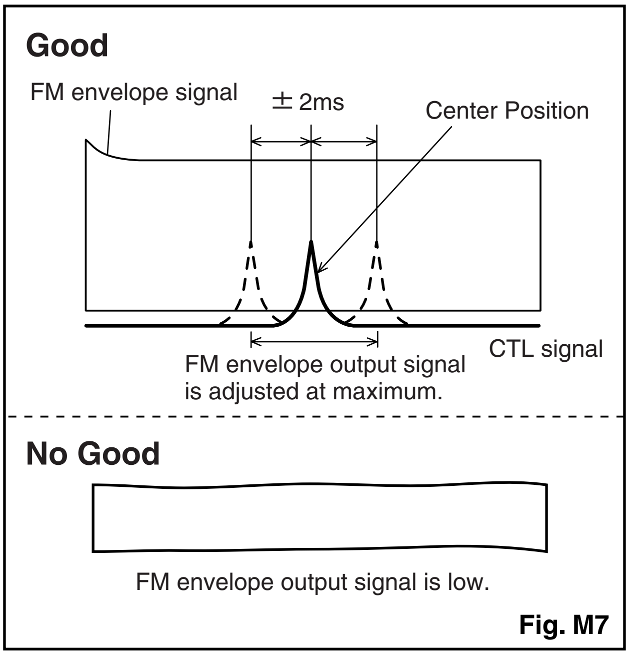

Good
FM envelope signal
± 2ms
Center Position
CTL signal
FM envelope output signal is adjusted at maximum.
No Good
FM envelope output signal is low.

Fig. M7

6. Set the Tracking Control Circuit to the preset position by pressing CH UP button on the remote control unit. and then "PLAY" button.

1-C. Checking/Adjustment of Envelope Waveform

Purpose:

To achieve a satisfactory picture, adjust the PB FM envelope becomes as flat as possible.

Symptom of Misalignment:

If the envelope output is poor, noise will appear in the picture. The tracking will then lose precision and the playback picture will be distorted by any slight variation of the Tracking Control Circuit.

1. Connect the oscilloscope to TP301 (C-PB) on the Main CBA. Use TP502 (RF-SW) as a trigger.
2. Playback the Gray Scale on the Alignment Tape (FL6NS8). Set the Tracking Control Circuit to the preset position by pressing CH UP button and then "PLAY" button on the unit. Adjust the height of Guide Rollers [2] and [3] (Fig. M3, Page 2-3-3) watching the oscilloscope display so that the envelope becomes as flat as possible. To do this adjustment, turn the top of the Guide Roller with the Guide Roller Adj. Screwdriver.
3. If the envelope is as shown in Fig. M7, adjust the height of Guide Roller [2] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
4. If the envelope is as shown in Fig. M8, adjust the height of Guide Roller [3] (Refer to Fig. M3) so that the waveform looks like the one shown in Fig. M9.
5. When Guide Rollers [2] and [3] (Refer to Fig. M3) are aligned properly, there is no envelope drop either at the beginning or end of track as shown in Fig. M9.

Dropping envelope level at the beginning of track.

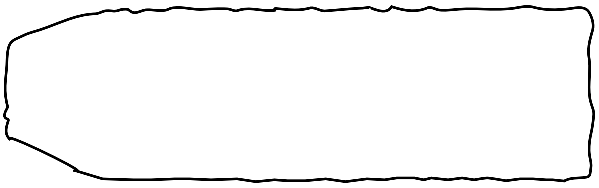


Fig. M8

Dropping envelope level at the end of track.

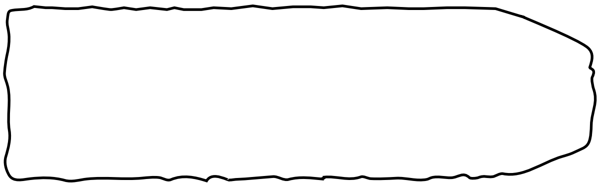


Fig. M9

Envelope is adjusted properly. (No envelope drop)

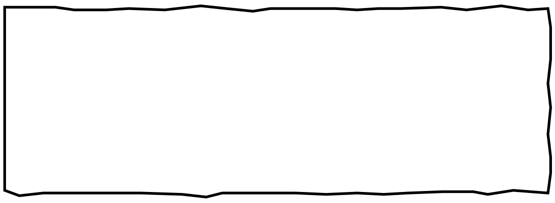


Fig. M10

Note: Upon completion of the adjustment of Guide Rollers [2] and [3] (Refer to Fig. M3), check the X Value by pushing the CH UP or DOWN buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure preset position. The number of pushes CH UP button to achieve 1/2 level of envelope should match the number of pushes CH DOWN button from center. If required, redo the "X Value Alignment."

1-D. Azimuth Alignment of Audio/Control/ Erase Head

Purpose:

To correct the Azimuth alignment so that the Audio/ Control/Erase Head meets tape tracks properly.

Symptom of Misalignment:

If the position of the Audio/Control/Erase Head is not properly aligned, the Audio S/N Ratio or Frequency Response will be poor.

1. Connect the oscilloscope to the audio output jack on the rear side of the deck.
2. Playback the alignment tape (FL6NS8) and confirm that the audio signal output level is 8kHz.
3. Adjust Azimuth Adj. Screw so that the output level on the AC Voltmeter or the waveform on the oscilloscope is at maximum. (Fig. M6)

Note: Upon completion of the adjustment of Azimuth Adj. Screw, check the X Value by pushing the CH UP or DOWN buttons alternately, to check the symmetry of the envelope. Check the number of pushes to ensure preset position. The number of pushes CH UP button to achieve 1/2 level of envelope should match the number of pushes CH DOWN button from center. If required, redo the “X Value Alignment.”

1-E. Checking and Alignment of Tape Path during reversing

Purpose:

To make sure that the tape path is well stabilized during reversing.

Symptom of Misalignment:

If the tape path is unstable during reversing, the tape will be damaged.

Note: Do not use an Alignment Tape for this procedure. If the unit is not correctly aligned, the tape may be damaged.

1. Insert a black cassette tape into the tray and set the unit to REV. Then confirm if the tape has been curled up or bent at the Take-up Guide Post[4] or REV Post[5]. (Refer to Fig. M11 and M12.)
2. When the tape has been curled up or bent, turn the alignment screw to adjust the height of REV Post. (Refer to Fig. M11 and M13.)

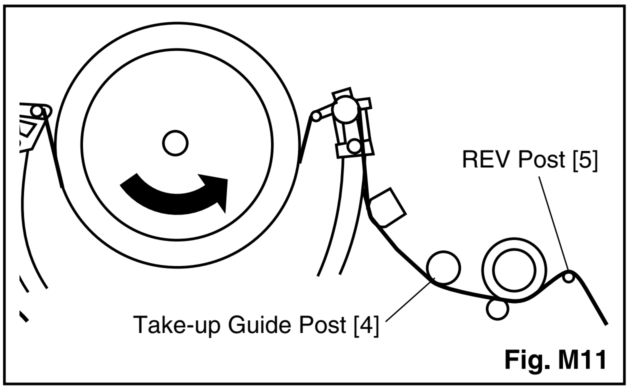


Fig. M11

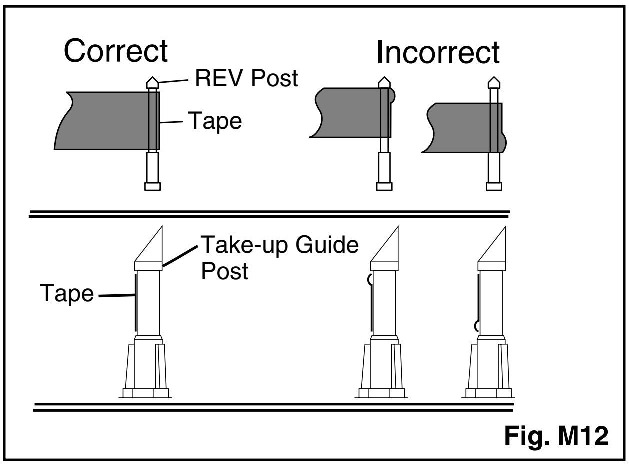


Fig. M12

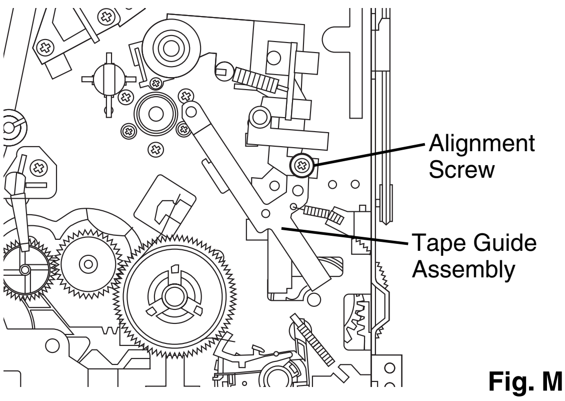


Fig. M13

DISASSEMBLY/ASSEMBLY PROCEDURES OF DECK MECHANISM

Before following the procedures described below, be sure to remove the deck assembly from the cabinet. (Refer to CABINET DISASSEMBLY INSTRUCTIONS.)

All the following procedures, including those for adjustment and replacement of parts, should be done in Eject mode; see the positions of [44] and [45] in Fig. DM1H on page 2-4-3. When reassembling, follow the steps in reverse order.

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[1]	[1]	Guide Holder A	T	DM3H	2(S-1)	
[2]	[1]	Cassette Holder Assembly	T	DM4H		
[3]	[2]	Slider (SP)	T	DM5H	(S-1A), *(L-1)	
[4]	[2]	Slider (TU)	T	DM5H	*(L-2)	
[5]	[4]	Lock Lever	T	DM5H	*(L-3), *(P-1)	
[6]	[2]	Cassette Plate	T	DM5H		
[7]	[7]	Cylinder Assembly	T	DM1H, DM6H	Desolder, 3(S-2)	
[8]	[8]	Loading Motor Assembly	T	DM1H, DM7H	Desolder, LDG Belt, 2(S-3)	
[9]	[9]	ACE Head Assembly	T	DM1H, DM7H	(S-4)	
[10]	[2]	Tape Guide Arm Assembly	T	DM1H, DM8H-1	*(P-2)	
[11]	[10]	C Door Opener	T	DM1H, DM8H-1	(S-4A), *(L-4)	
[12]	[11]	Pinch Arm (B)	T	DM1H, DM8H-1, DM8H-2	*(P-3)	
[13]	[12]	Pinch Arm (A) Assembly	T	DM1H, DM8H-1, DM8H-2		
[14]	[14]	FE Head	T	DM1H, DM9H	(S-5)	
[15]	[15]	Prism	T	DM1H, DM9H	(S-6)	
[16]	[2]	Slider Shaft	T	DM10H	*(L-5)	
[17]	[16]	C Drive Lever (SP)	T	DM10H		
[18]	[16]	C Drive Lever (TU)	T	DM10H	(S-7), *(P-4)	
[19]	[19]	Capstan Motor	B	DM2H, DM11H	3(S-8), Cap Belt	
[20]	[20]	Clutch Assembly (HI)	B	DM2H, DM12H	(C-1)	
[21]	[20]	Center Gear	B	DM12H		
*[22]	[22]	F Brake Assembly (HI)	B	DM2H, DM12H	*(L-6)	
[23]	[22]	Worm Holder	B	DM2H, DM13H-1	(S-9), *(L-7), *(L-8)	
[24]	[22]	Pulley Assembly (HI)	B	DM2H, DM13H-1		
[25]	[25]	Mode Gear (LM)	B	DM2H, DM13H-1	(C-2)	
[26]	[20],[25]	Mode Lever (HI)	B	DM2H, DM13H-1, DM13H-2	(C-3)	
[27]	[22],[23], [26]	Cam Gear (A) (HI)	B	DM2H, DM13H-1, DM13H-2	(C-4)	(+)Refer to Alignment Sec.Page 2-5-1
[28]	[26]	TR Gear C	B	DM2H, DM13H-1	(C-5)	
[29]	[28]	TR Gear Spring	B	DM13H-1		
[30]	[29]	TR Gear A/B	B	DM13H-1		
[31]	[31]	FF Arm (HI)	B	DM1H, DM14H		
[32]	[26]	Idler Assembly (HI)	B	DM1H, DM14H	*(L-9)	

STEP /LOC. No.	START-ING No.	PART		REMOVAL		INSTALLATION
				Fig. No.	REMOVE/*UNHOOK/ UNLOCK/RELEASE/ UNPLUG/DESOLDER	ADJUSTMENT CONDITION
[33]	[26]	BT Arm	B	DM2H, DM14H	*(P-5)	
[34]	[26]	Loading Arm (SP) Assembly	B	DM2H, DM14H		(+)Refer to Alignment Sec.Page 2-5-1
[35]	[34]	Loading Arm (TU) Assembly	B	DM2H, DM14H		(+)Refer to Alignment Sec.Page 2-5-1
[36]	[16],[26]	M Brake (TU) Assembly (HI)	T	DM1H, DM15H		
[37]	[2],[26]	M Brake (SP) Assembly (HI)	T	DM1H, DM15H	*(P-6)	
[38]	[37]	Tension Lever Assembly	T	DM1H, DM15H		
[39]	[38]	T Lever Holder	T	DM15H	*(L-10)	
[40]	[40]	M Gear (HI)	T	DM1H, DM15H	(C-6)	
[41]	[15],[40]	Sensor Gear (HI)	T	DM1H, DM15H	(C-7)	
[42]	[36],[40]	Reel T	T	DM1H, DM15H		
[43]	[38]	Reel S	T	DM1H, DM15H		
[44]	[34],[38]	Moving Guide S Preparation	T	DM1H, DM16H	(S-11), Slide Plate	
[45]	[35]	Moving Guide T Preparation	T	DM1H, DM16H		
[46]	[19]	TG Post Assembly	T	DM1H, DM16H	*(L-11)	
[47]	[27]	Rack Assembly	R	DM17H		(+)Refer to Alignment Sec.Page 2-5-1
[48]	[47]	F Door Opener	R	DM17H		
[49]	[49]	Cleaner Assembly	T	DM1H, DM6H		
[50]	[49]	CL Post	T	DM6H	*(L-12)	
↓ (1)	↓ (2)	↓ (3)	↓ (4)	↓ (5)	↓ (6)	↓ (7)

(1): Follow steps in sequence. When reassembling, follow the steps in reverse order.
These numbers are also used as identification (location) No. of parts in the figures.

(2): Indicates the part to start disassembling with in order to disassemble the part in column (1).

(3): Name of the part

(4): Location of the part: T=Top B=Bottom R=Right L=Left

(5): Figure Number

(6): Identification of parts to be removed, unhooked, unlocked, released, unplugged, unclamped, or desoldered.
P=Spring, W=Washer, C=Cut Washer, S=Screw, *=Unhook, Unlock, Release, Unplug, or Desolder
e.g., 2(L-2) = two Locking Tabs (L-2).

(7): Adjustment Information for Installation
(+):Refer to Deck Exploded Views for lubrication.

*** [22] F Brake Assembly (HI) is not used in 2 head model.**

Top View

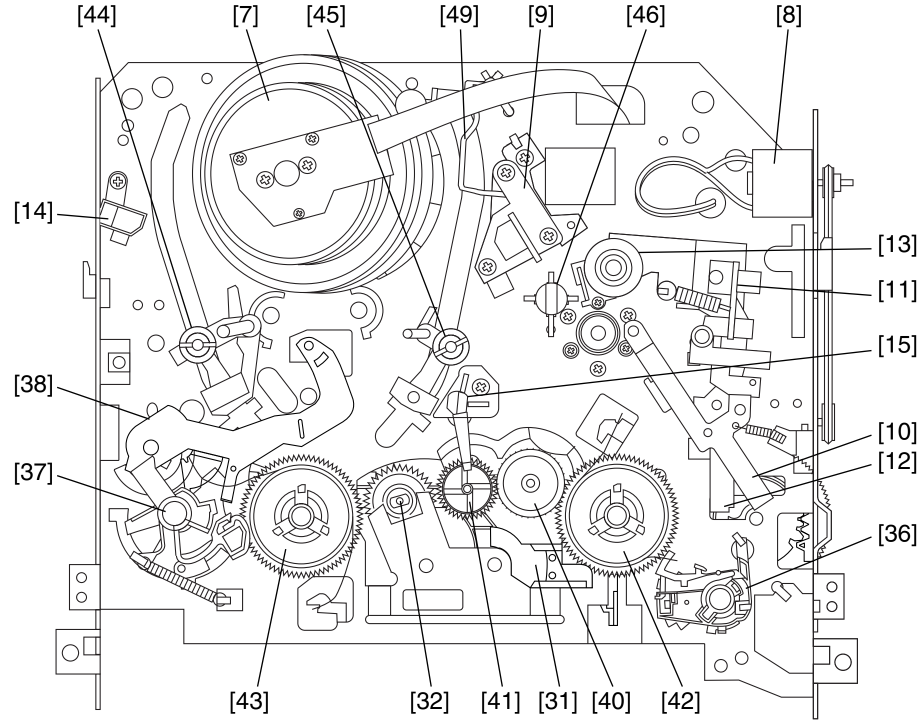


Fig. DM1H

Bottom View

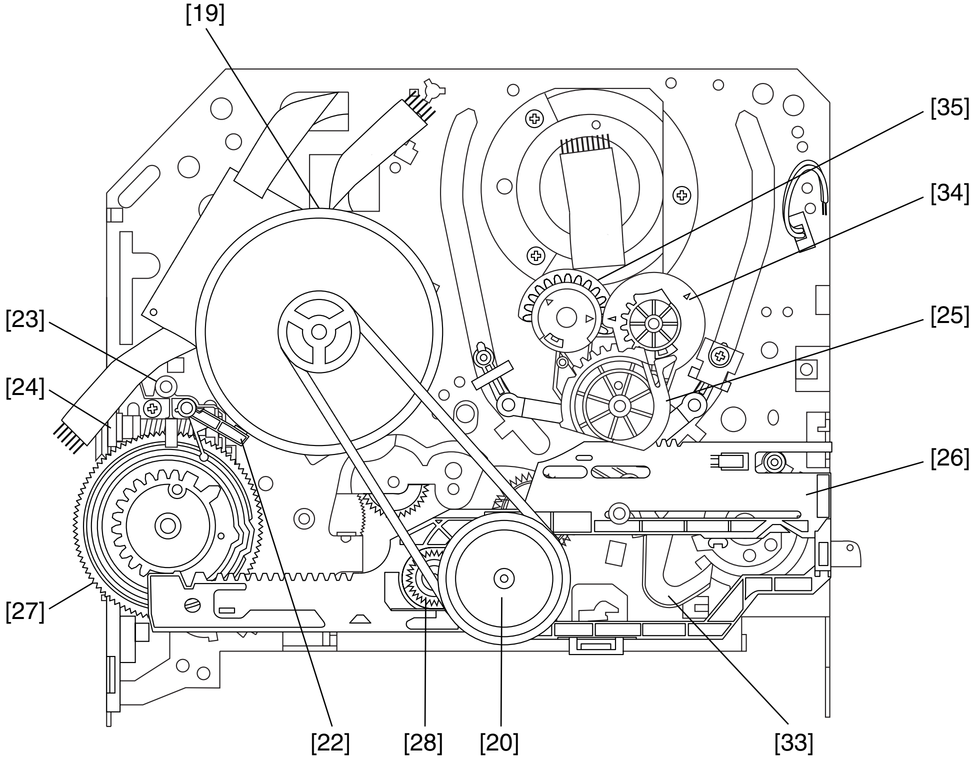


Fig. DM2H

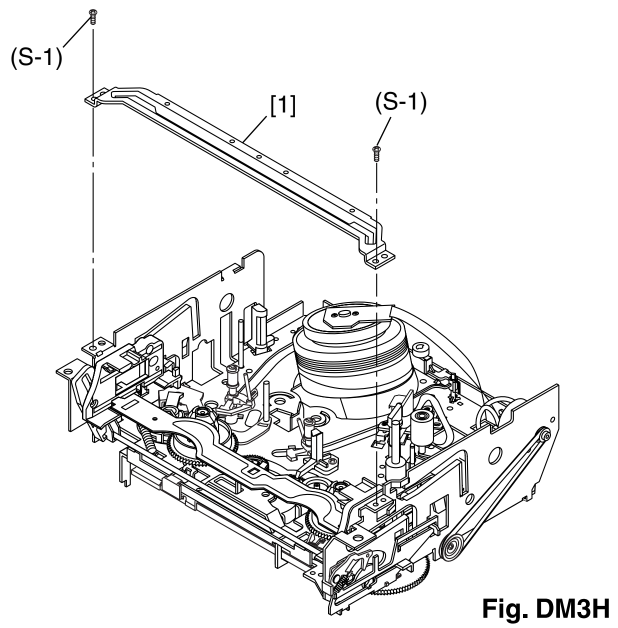
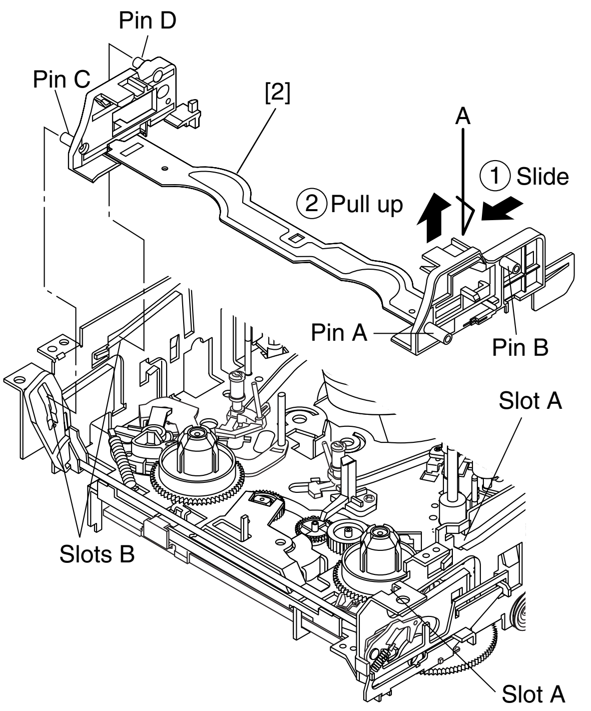


Fig. DM3H



First, while pushing the locking tab as shown in the right, slide and pull up the right side on [2] to release Pin A and Pin B from the slots A.
Then, remove Pin C and Pin D on [2] from the slots B as shown.

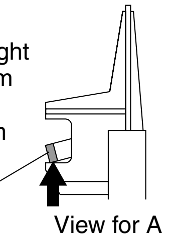
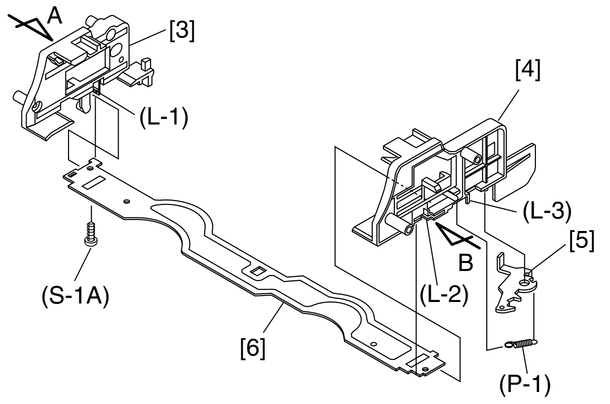
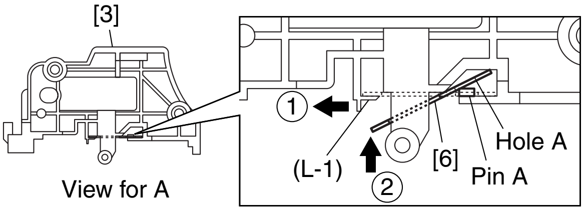


Fig. DM4H



Installation of [3] and [6]

First, insert [6] diagonally in [3] as shown below. Then, install [6] in [3] while pushing (L-1) in a direction of arrow. After installing [6] in [3], confirm that pin A of [3] enters hole A of [6] properly.



Installation of [4] and [6]

Install [6] in [4] while pulling (L-2) in a direction of arrow. After installing [6] in [4], confirm that pin B of [4] enters hole B of [6] properly.

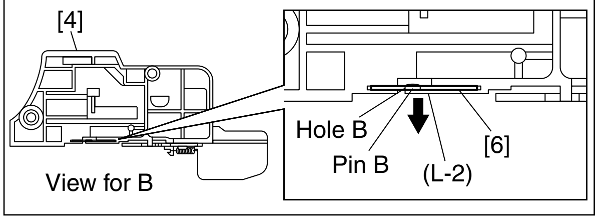


Fig. DM5H

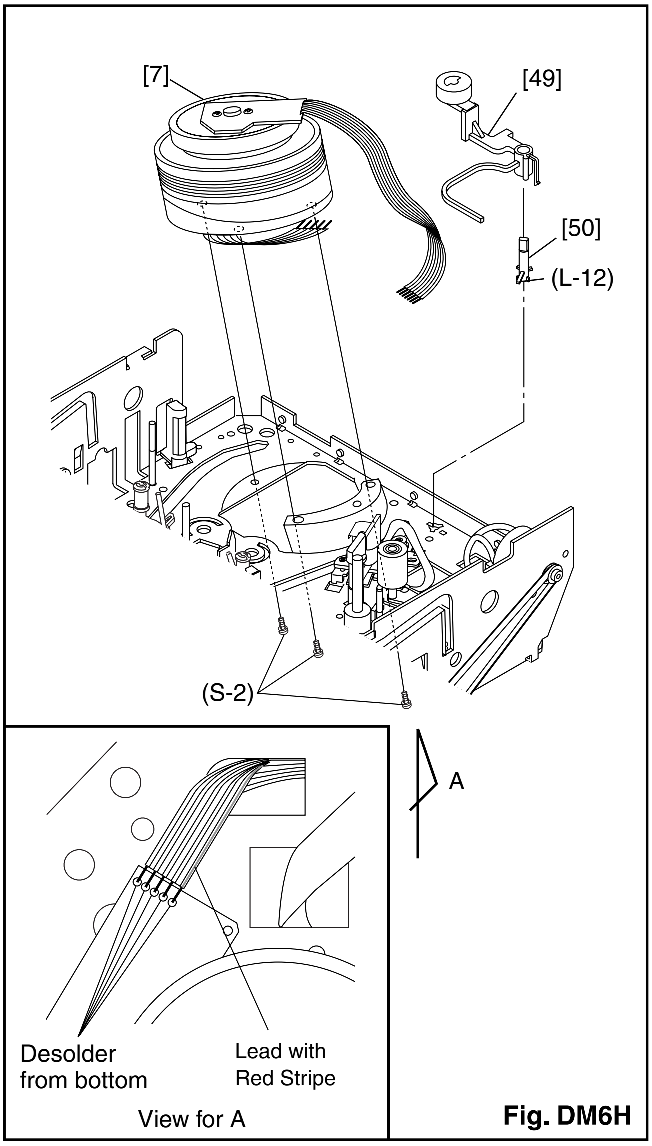
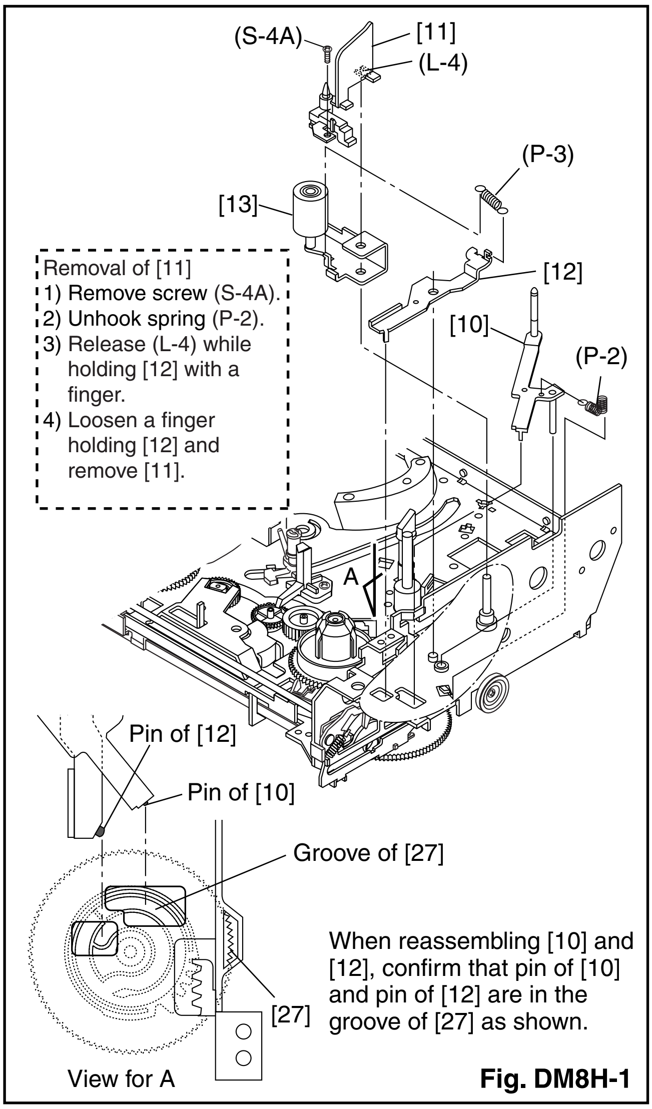


Fig. DM6H



Removal of [11]
1) Remove screw (S-4A).
2) Unhook spring (P-2).
3) Release (L-4) while holding [12] with a finger.
4) Loosen a finger holding [12] and remove [11].

When reassembling [10] and [12], confirm that pin of [10] and pin of [12] are in the groove of [27] as shown.

Fig. DM8H-1

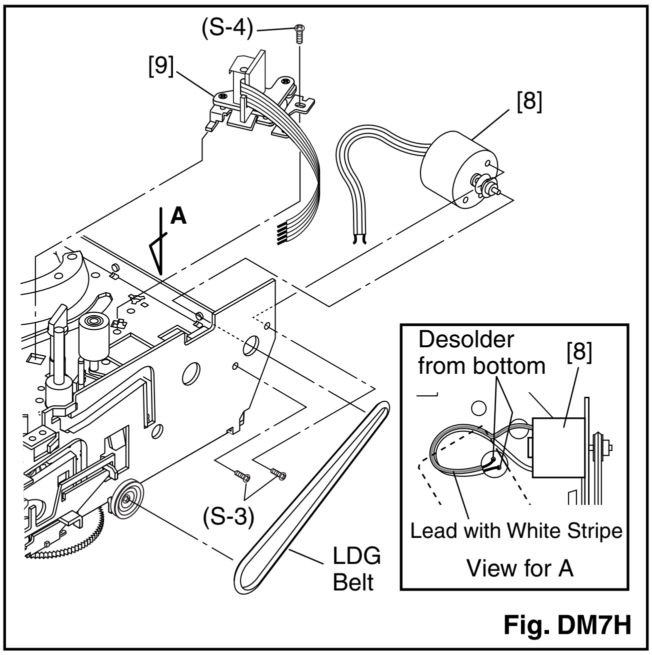


Fig. DM7H

Installation of [13] and [12]

Hook spring (P-3) up to [12] and [13], then install then to the specified position so that [12] will be floated slightly while holding [12] and [13]. (Refer to Fig. A.)

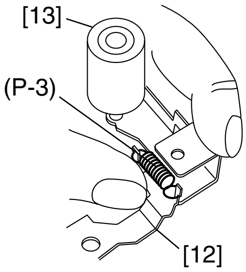


Fig. A

Install pin of [12] in groove of [27]. (Refer to Fig. B.)

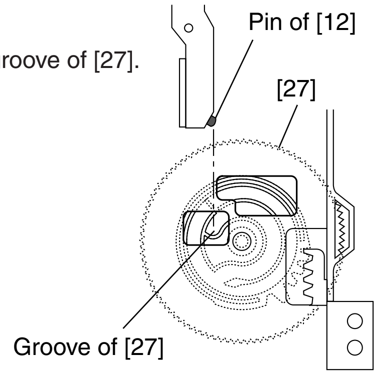


Fig. B (Top view)

Hold [12] and [13] till groove of pin of chassis looks and fit [13] in notch of chassis. Then, turn a few [13] while holding [12]. (Refer to Fig. C.)

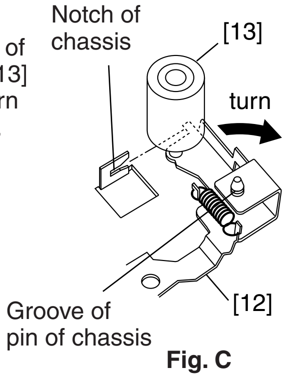


Fig. C

Install [11] and [10] while holding [12]. (Refer to Fig. DM8H-1.)

Fig. DM8H-2

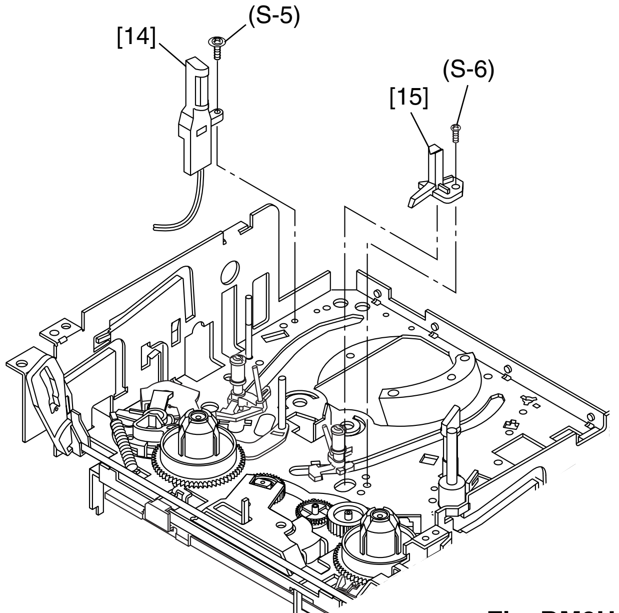


Fig. DM9H

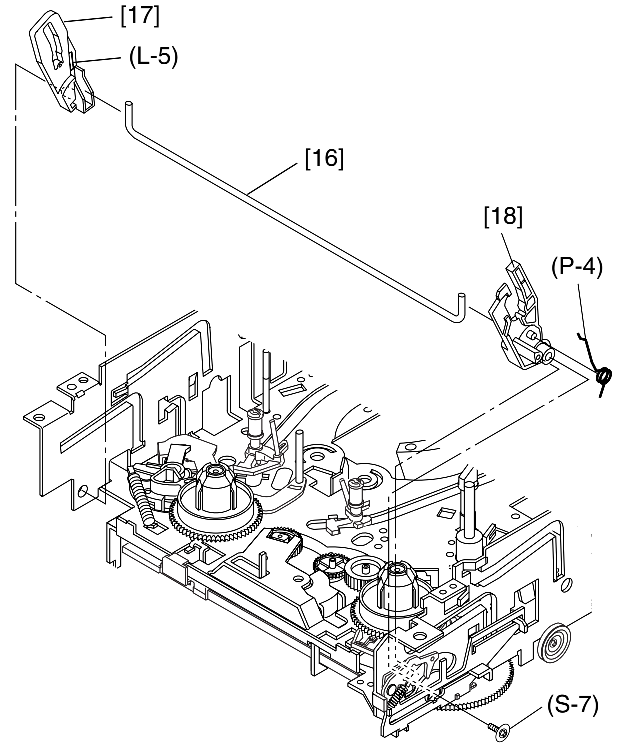


Fig. DM10H

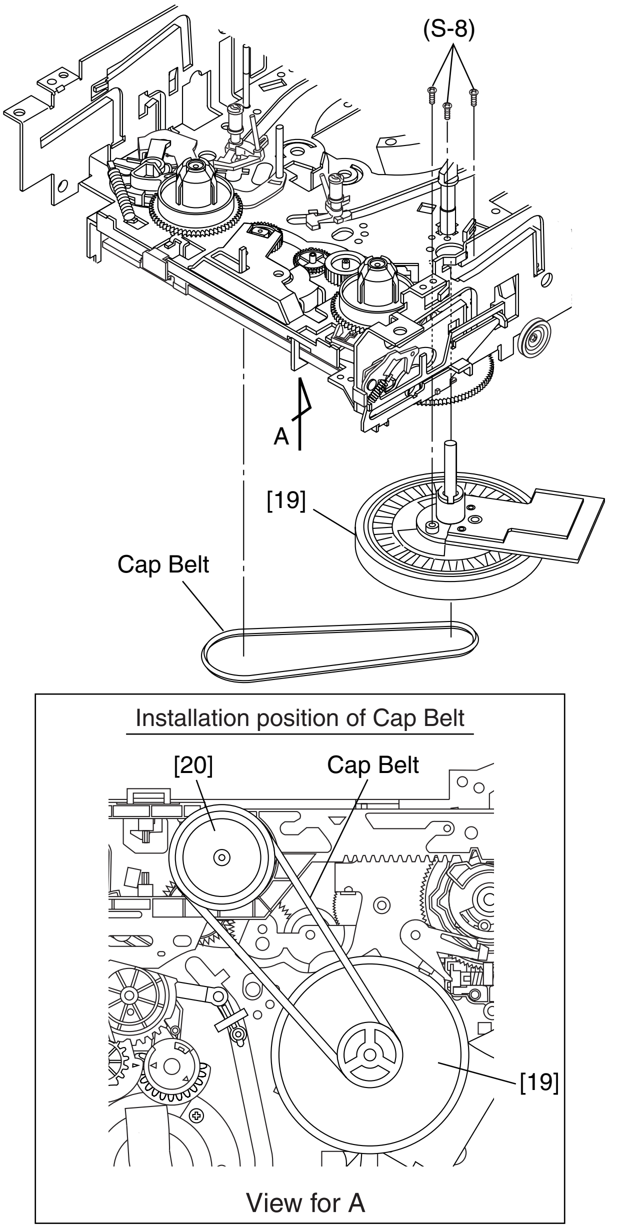


Fig. DM11H

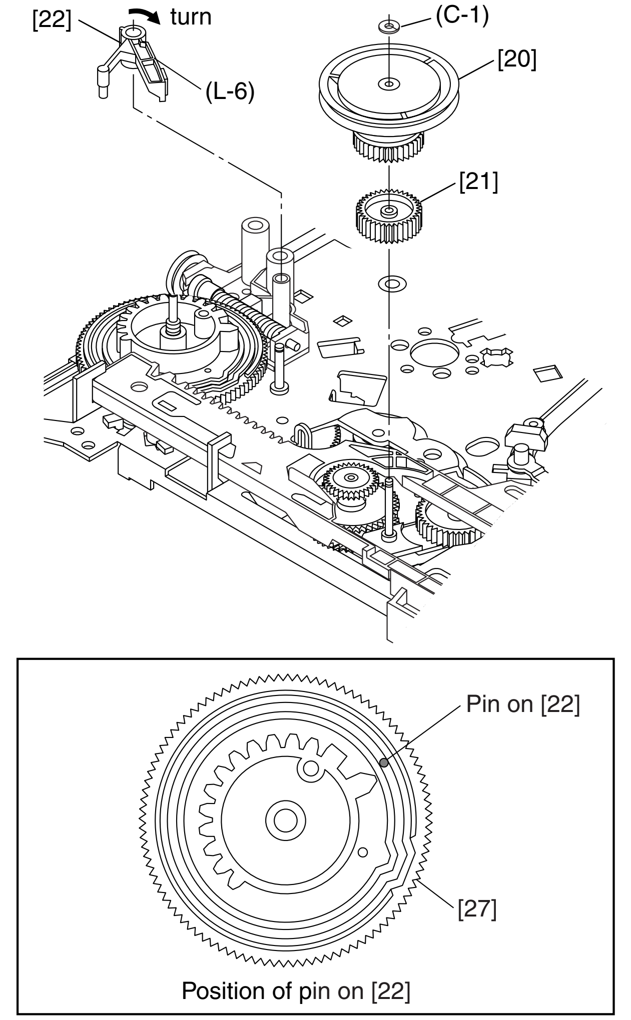


Fig. DM12H

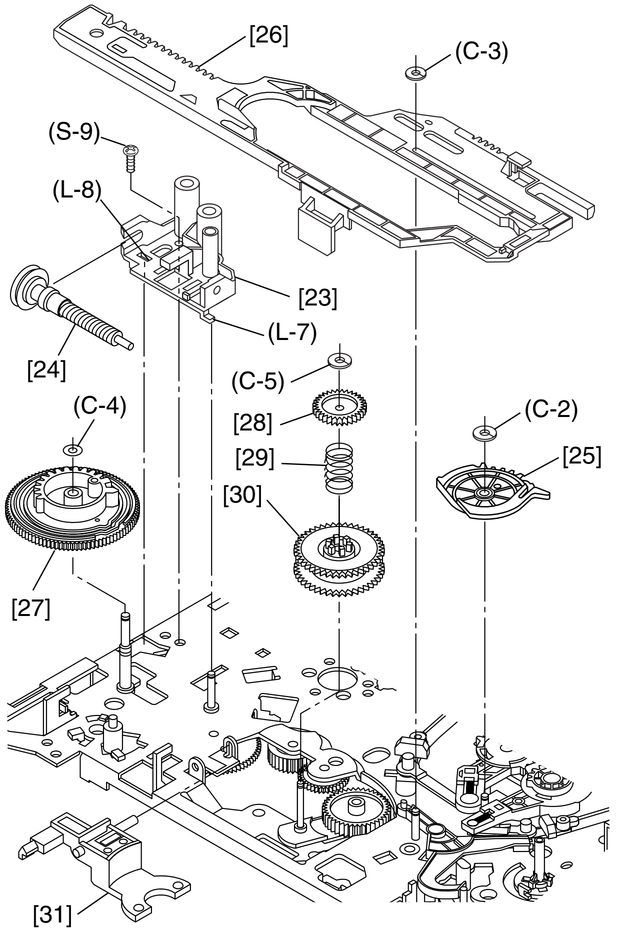
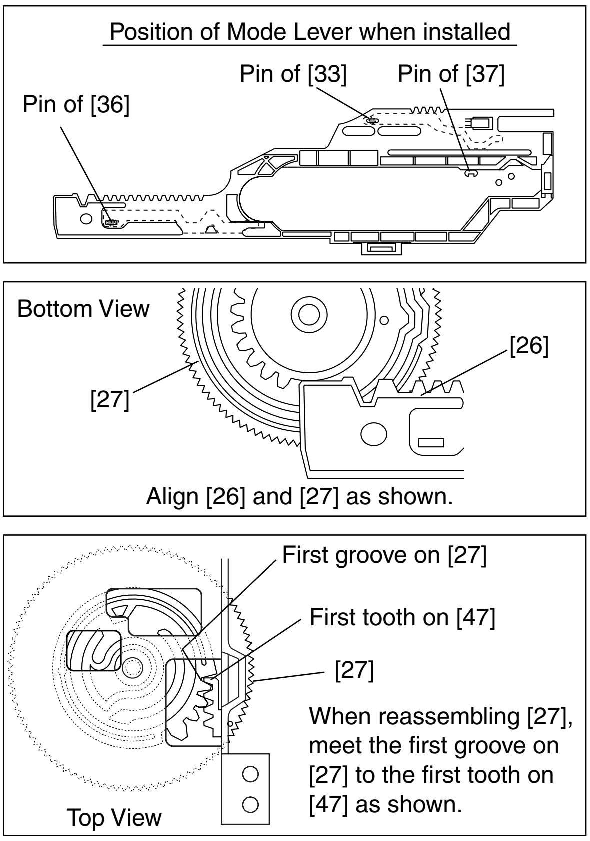


Fig. DM13H-1

Installation of [26]



Position of Mode Lever when installed

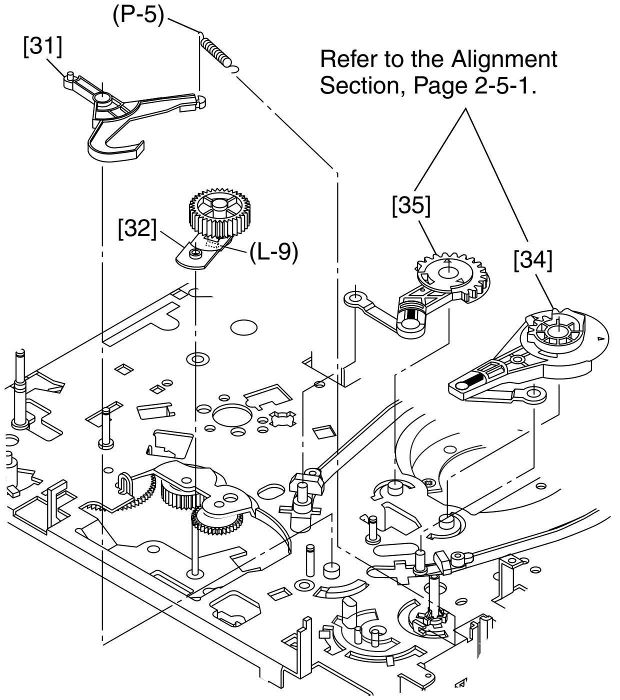
Bottom View

Align [26] and [27] as shown.

Top View

When reassembling [27], meet the first groove on [27] to the first tooth on [47] as shown.

Fig. DM13H-2



Refer to the Alignment Section, Page 2-5-1.

Fig. DM14H

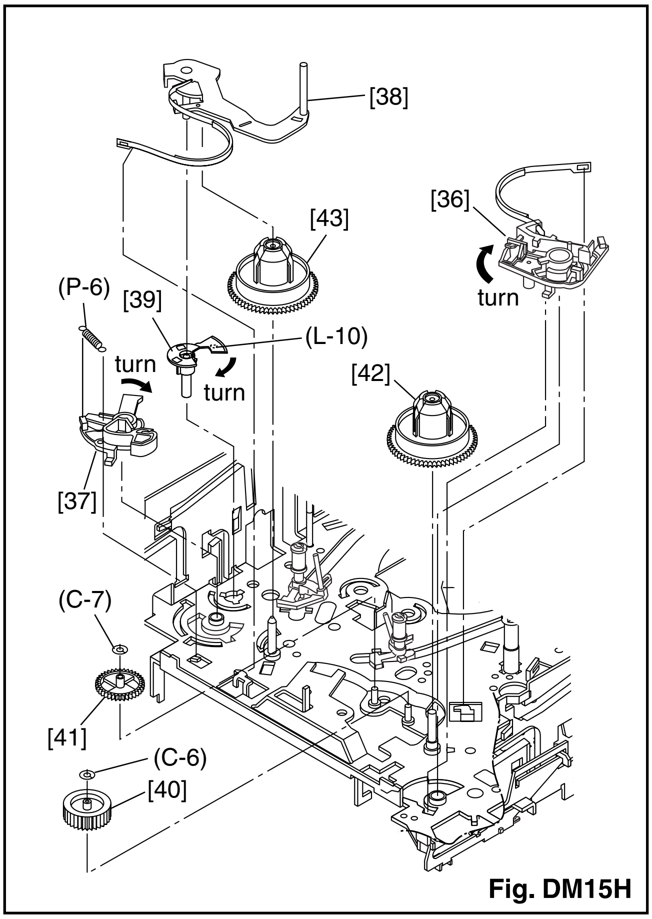


Fig. DM15H

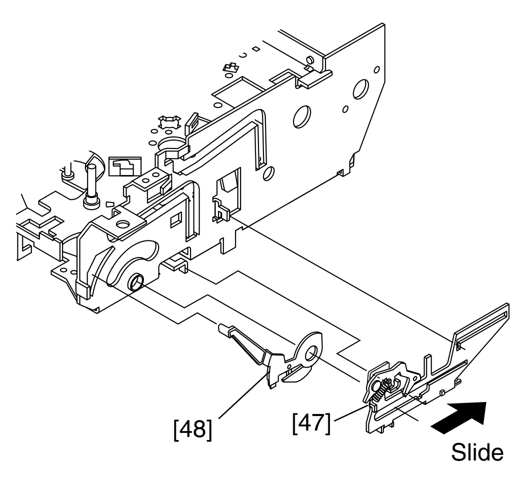


Fig. DM17H

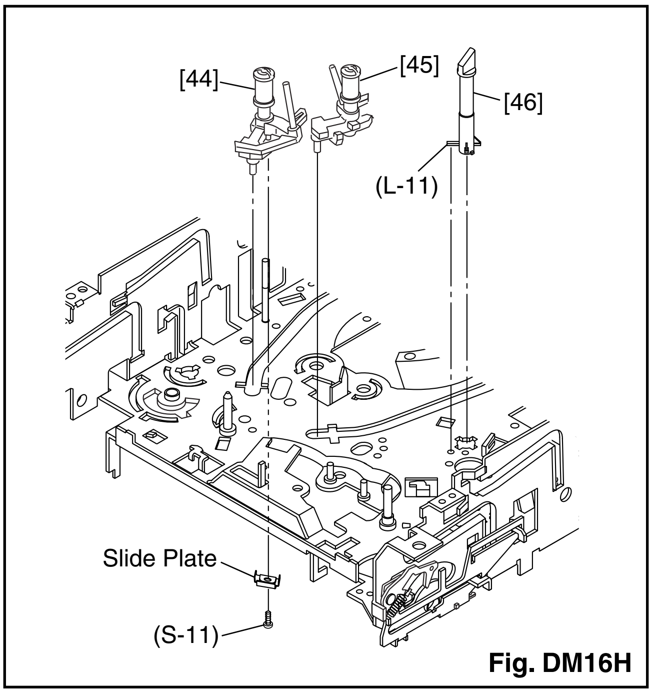


Fig. DM16H

ALIGNMENT PROCEDURES OF MECHANISM

The following procedures describe how to align the individual gears and levers that make up the tape loading/unloading mechanism. Since information about the state of the mechanism is provided to the System Control Circuit only through the Mode Switch, it is essential that the correct relationship between individual gears and levers be maintained.

All alignments are to be performed with the mechanism in Eject mode, in the sequence given. Each procedure assumes that all previous procedures have been completed.

IMPORTANT:

If any one of these alignments is not performed properly, even if off by only one tooth, the unit will unload or stop and it may result in damage to the mechanical or electrical parts.

Alignment points in Eject Position

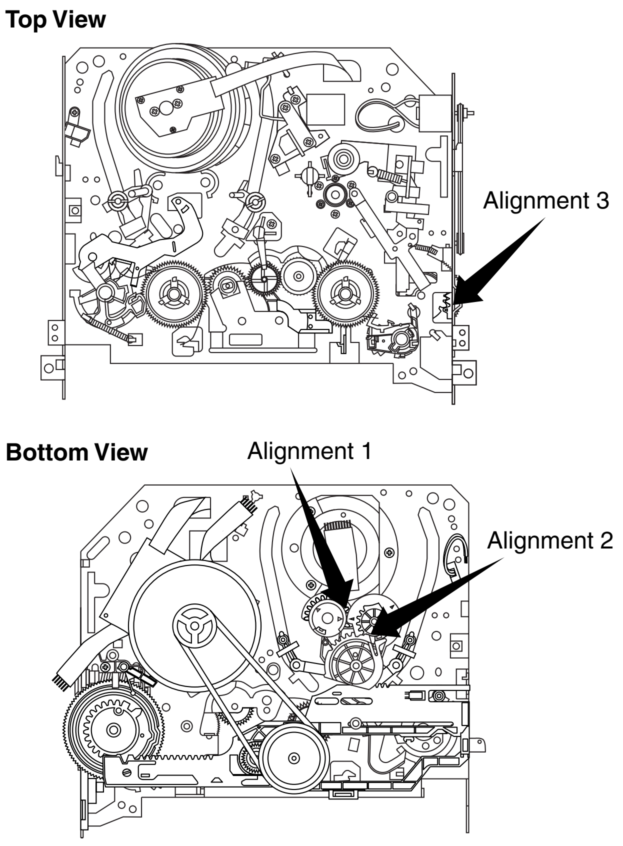


Fig. AL1

Alignment 1

Loading Arm (SP) and (TU) Assembly

Install Loading Arm (SP) and (TU) Assembly so that their triangle marks point to each other as shown in Fig. AL2.

Alignment 2

Mode Gear

Keeping the two triangles pointing at each other, install the Loading Arm (SP) Assembly so that the last tooth of the gear meets the most inside teeth of the Mode Gear. See Fig. AL2.

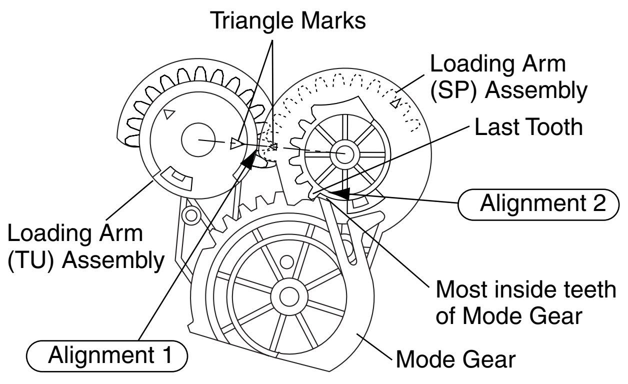

Triangle Marks
Loading Arm (SP) Assembly
Last Tooth
Alignment 2
Loading Arm (TU) Assembly
Most inside teeth of Mode Gear
Alignment 1
Mode Gear

Fig. AL2

Alignment 3

Cam Gear (A) (HI), Rack Assembly

Install the Rack Assembly so that the first tooth on the gear of the Rack Assembly meets the first groove on the Cam Gear (A) (HI) as shown in Fig. AL3.

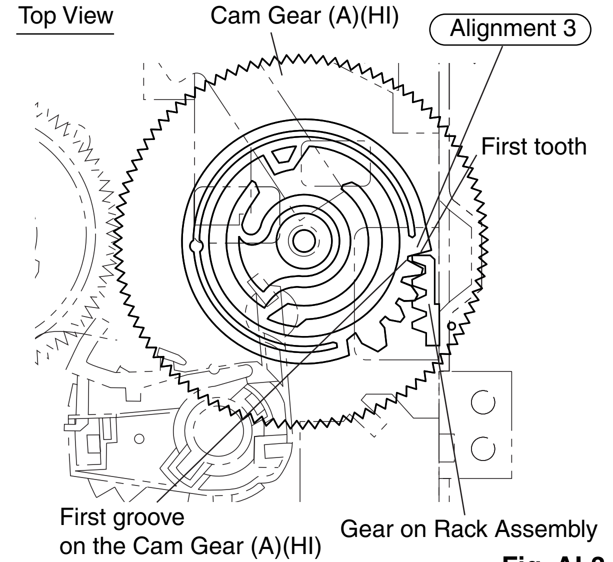
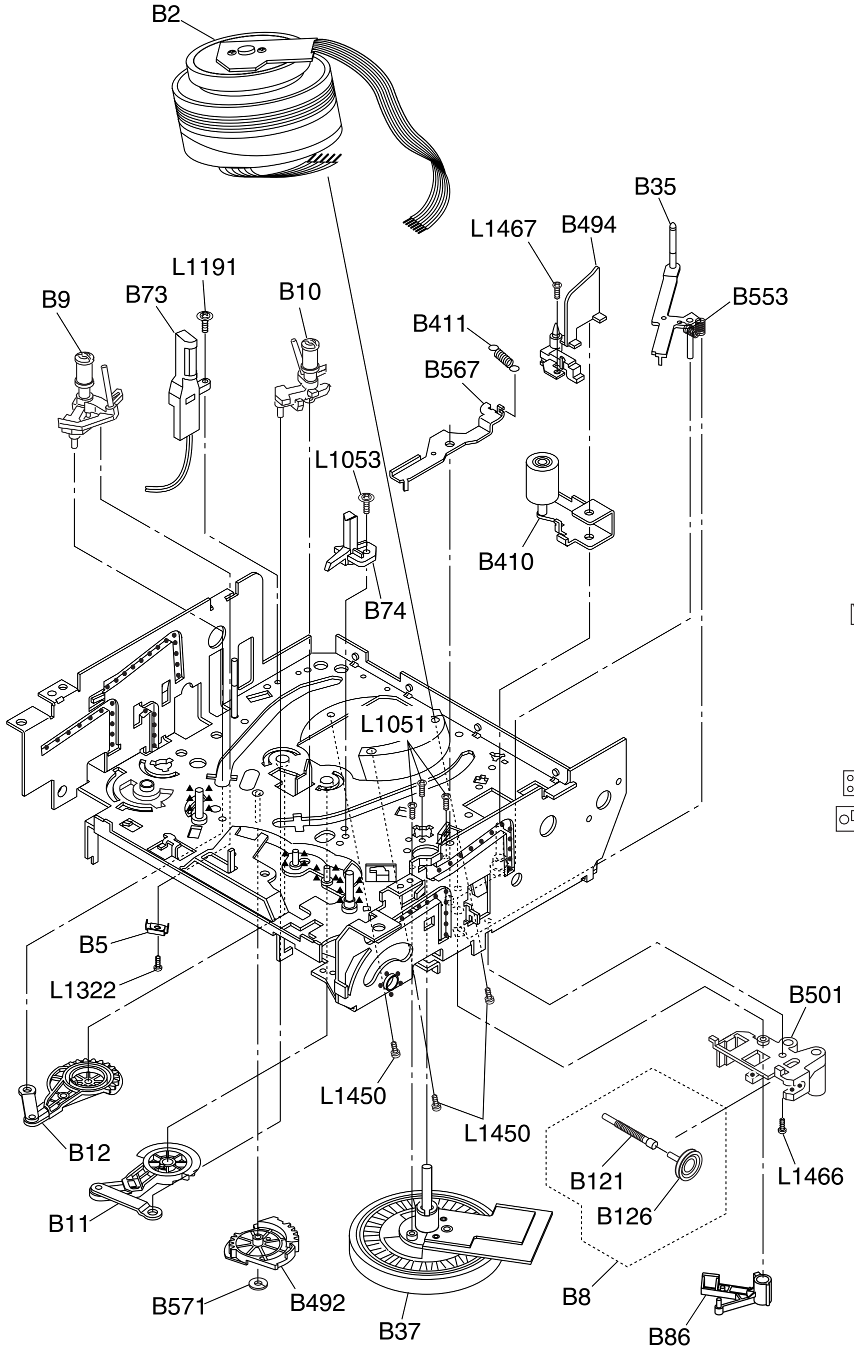


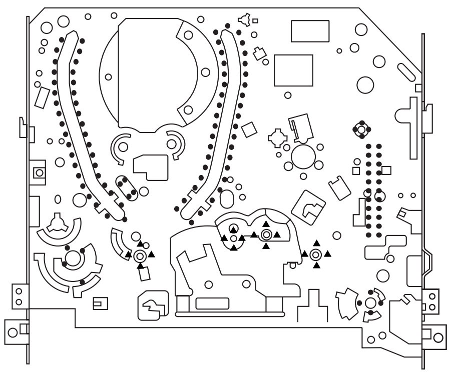
Fig. AL3

DECK EXPLODED VIEWS

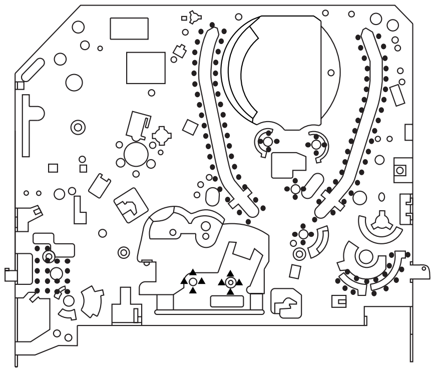
Deck Mechanism View 1

Mark	Description
● ● ● ● ●	Floil G-684G or Multemp MH-D (Blue grease)
▲▲▲▲▲	SLIDUS OIL #150





Chassis Assembly
Top View (Lubricating Point)

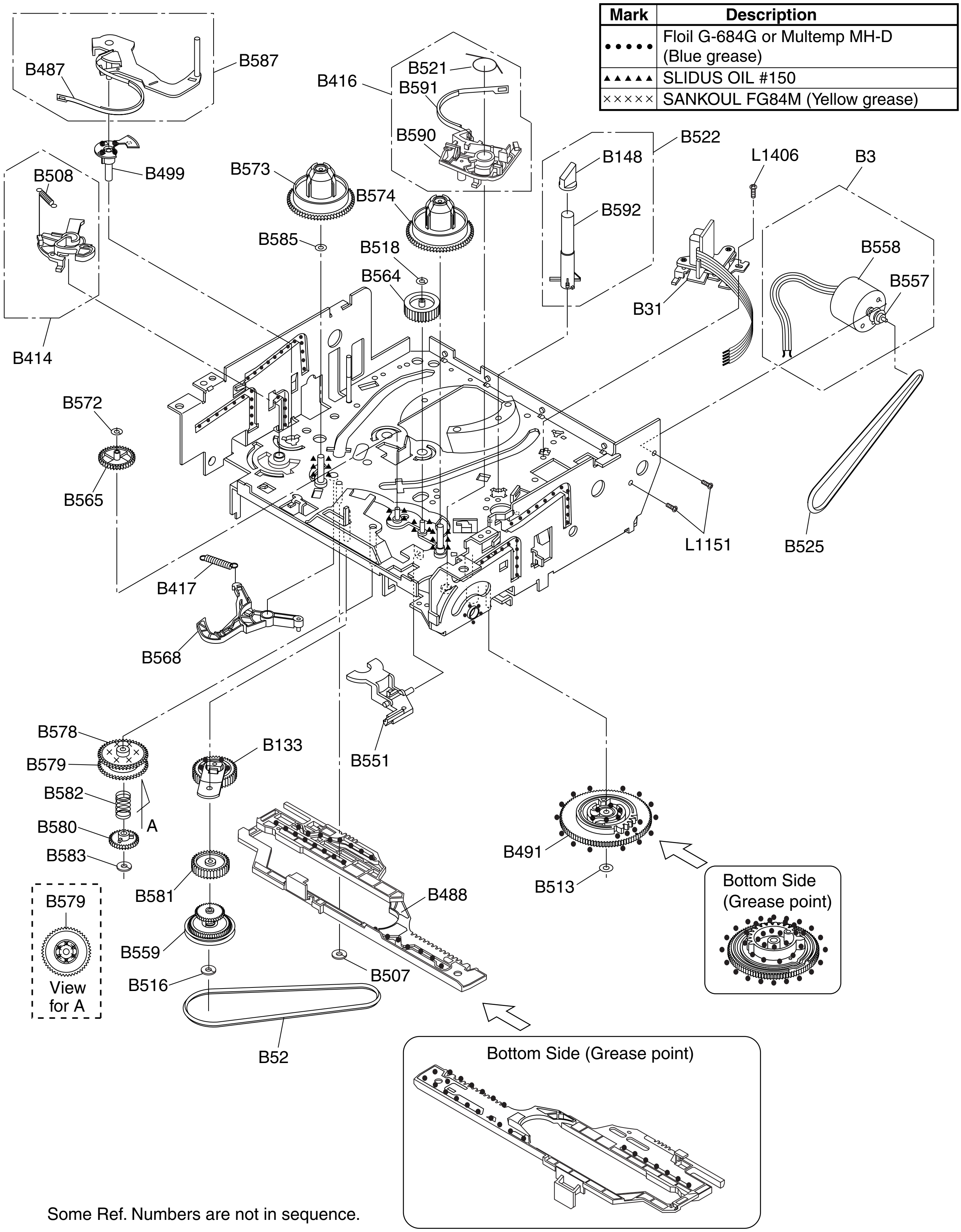


Some Ref. Numbers are not in sequence.

Chassis Assembly
Bottom View (Lubricating Point)

Deck Mechanism View 2

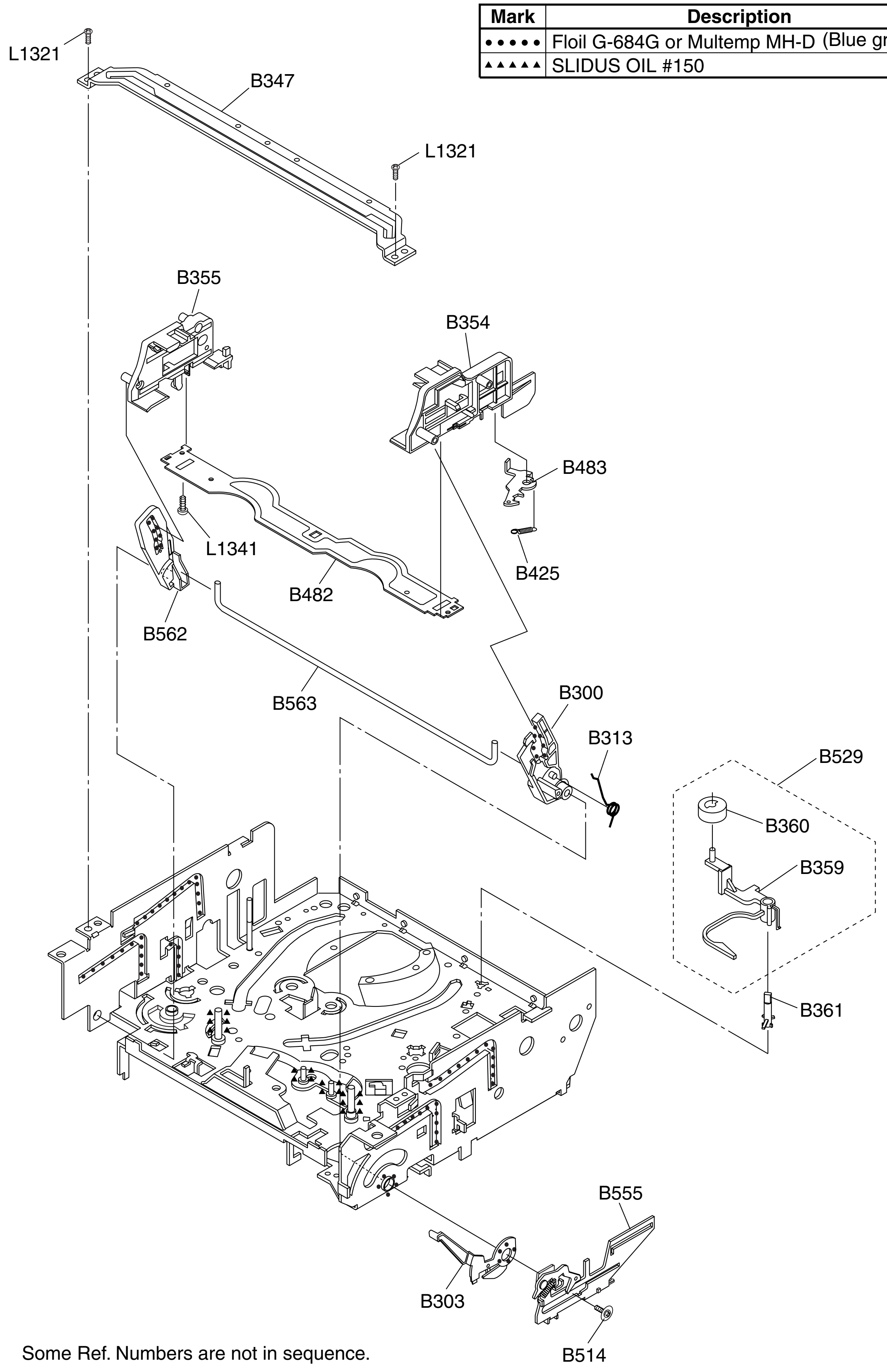
Mark	Description
•••••	Floil G-684G or Multemp MH-D (Blue grease)
▲▲▲▲▲	SLIDUS OIL #150
×××××	SANKOUL FG84M (Yellow grease)



Some Ref. Numbers are not in sequence.

Deck Mechanism View 3

Mark	Description
● ● ● ● ●	Floil G-684G or Multemp MH-D (Blue grease)
▲ ▲ ▲ ▲ ▲	SLIDUS OIL #150



Some Ref. Numbers are not in sequence.

DECK PARTS LIST

Ref. No.	Description	Part No.
B2	CYLINDER ASSEMBLY MK12.5 PAL 6HD or	N2367CYL
	CYLINDER ASSEMBLY MK12.5 PAL 6HD(V)	N2369CYL
B3	LOADING MOTOR ASSEMBLY MK12.5	0VSA14636
B5	SLIDE PLATE MK12.5	0VM416429
B8	PULLEY ASSEMBLY(HI) MK12	0VSA13501
B9	MOVING GUIDE S P.P MK12.5	0VSA14717
B10	MOVING GUIDE T P.P MK12.5	0VSA14639
B11	LOADING ARM(TU) ASSEMBLY MK12	0VSA13300
B12	LOADING ARM(SP) ASSEMBLY MK12	0VSA13299
B31	AC HEAD ASSEMBLY MK12.5	0VSA14841
B35	TAPE GUIDE ARM ASSEMBLY MK12.5	0VSA15014
B37	CAPSTAN MOTOR 288/VCZC1301	N9681CML
B52	CAP BELT MK10	0VM411138
B73	FE HEAD(MK11) MH-131SF11 or	DHVEC01Z0005
	FE HEAD(MK12) VTR-1X2ERS11-155 or	DHVEC01TE005
	FE HEAD(MK12) HVFHP0047A	DHVEC01AL007
B74	PRISM MK10	0VM202870
B86	F BRAKE ASSEMBLY(HI) MK12	0VSA13447
B121	WORM MK12	0VM414091
B126	PULLEY MK12	0VM414330B
B133	IDLER ASSEMBLY(HI) MK12.5	0VSA14849
B148	TG CAP MK6	0VM407664C
B300	C DRIVE LEVER(TU) MK12	0VM203773
B303	F DOOR OPENER MK12	0VM203751C
B313	C DRIVE SPRING MK12	0VM414145
B347	GUIDE HOLDER A MK10	0VM304920
B354	SLIDER(TU) MK12	0VM101172F
B355	SLIDER(SP) MK12	0VM101182H
B359	CLEANER LEVER MK10	0VM304413
B360	CLEANER ROLLER MK9	0VM410032C
B361	CL POST MK10	0VM411114
B410	PINCH ARM(A) ASSEMBLY(6) MK12.5 or	0VSA14935
	PINCH ARM(A) ASSEMBLY(5) MK12	0VSA13788
B411	PINCH SPRING MK12	0VM414644
B414	M BRAKE(SP) ASSEMBLY(HI) MK12	0VSA13655
B416	M BRAKE(TU) ASSEMBLY(HI) MK12	0VSA13449
B417	TENSION SPG(3002645) MK12.5	0VM414221G
B425	LOCK LEVER SPRING MK10	0VM411110
B482	CASSETTE PLATE MK12	0VM203749
B483	LOCK LEVER MK12	0VM414095
B487	BAND BRAKE(SP) MK12	0VM305723
B488	MODE LEVER(HI) MK12 or	0VM101175J
	MODE LEVER(HI) MK12.5	0VM101352
B491	CAM GEAR(A)(HI) MK12	0VM101176
B492	MODE GEAR(LM) MK12	0VM204236
B494	C DOOR OPENER MK12	0VM305719
B499	T LEVER HOLDER MK12	0VM305729
B501	WORM HOLDER MK12 or	0VM203767
	WORM HOLDER(R) MK12	0VM204324
B507	REEL WASHER MK9 5*2.1*0.5	0VM410058
B508	S BRAKE SPRING(HI) MK12	0VM414899
B513	P.S.W F 6*2.55*0.5	0VM402629A
B514	SCREW RACK MK10	0VM411535
B516	REEL WASHER MK9 5*2.1*0.5	0VM410058
B518	P.S.W CUT 1.6X4.0X0.5T	0VM408485A
B521	REV BRAKE SPG(HI) MK12	0VM414943
B522	TG POST ASSEMBLY MK10	0VSA11012
B525	LDG BELT MK11	0VM412804
B529	CLEANER ASSEMBLY MK10	0VSA11161
B551	FF ARM(HI) MK12	0VM306183
B553	REV SPRING MK11	0VM412555
B555	RACK ASSEMBLY MK12	0VSA13289
B557	MOTER PULLEY U5	0VM403205
B558	LOADING MOTOR M31E-1 R-14 7401	MMDZB12MM007
B559	CLUTCH ASSEMBLY(HI) MK12	0VSA13450
B562	C DRIVE LEVER(SP) MK12	0VM203772
B563	SLIDER SHAFT MK12	0VM305762
B564	M GEAR(HI) MK12	0VM305755
B565	SENSOR GEAR(HI) MK12	0VM305756
B567	PINCH ARM(B) MK12	0VM305718
B568	BT ARM MK12	0VM305728
B571	P.S.W CUT 1.6X4.0X0.5T	0VM408485A
B572	P.S.W CUT 1.6X4.0X0.5T	0VM408485A
B573	REEL S MK11	0VM203436
B574	REEL T MK10	0VM202872C
B578	TR GEAR A MK10	0VM304440
B579	TR GEAR B MK12	0VM305900
B580	TR GEAR C MK12	0VM305743A
B581	CENTER GEAR MK11	0VM305081
B582	TR GEAR SPRING MK10	0VM411187C
B583	CAM WASHER MK12	0VM414741
B585	PSW(317505) MK11	0VM413663
B587	TENSION LEVER ASSEMBLY MK12	0VSA13279
B590	BRAKE ARM(TU) MK12	0VM203752E
B591	BAND BRAKE(TU) MK12	0VM305724C
B592	TG POST MK10	0VM411108E
L1051	SCREW, B-TIGHT M2.6X6 PAN HEAD+	GPMB9060
L1053	SCREW, S-TIGHT M2.6X8 WASHER HEAD+	GCMS9080
L1151	SCREW, SEMS M2.6X4 PAN HEAD+	CPM39040
L1191	SCREW, S-TIGHT M2.6X8 WASHER HEAD+	GCMS9080
L1321	SCREW, S-TIGHT M3X6 BIND HEAD+	GBMS3060
L1322	SCREW, B-TIGHT M2.3X4 BIND HEAD+	GBMBY040
L1341	SCREW, P-TIGHT M2X6 PAN HEAD+	GPMP2060
L1406	AC HEAD SCREW MK9	0VM410964
L1450	SCREW, SEMS M2.6X5 PAN HEAD+	CPM39050
L1466	SCREW, S-TIGHT M2.6X6 BIND HEAD+	GBMS9060
L1467	SCREW M2.6X5 WASHER HEAD+	SCM39050

29A-650/29A-654
HG450ED/HG451ED
2004-04-16